PAPER TRADE
JOURNAL

How Gaspesia's New Bleach Plant Was Built . . . . p. 20

November 20, 1953

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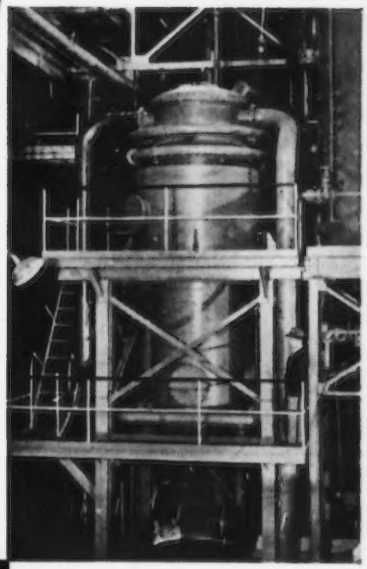

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is really effective

Even at the most modern pulp mills, escaping sulfide odors continue to be a major problem. Condensing, scrubbing, or burning the waste gases have not been the complete solution to effective odor abatement—odor abatement that literally means "good will in the air."

Du Pont chemists and engineers, who have worked closely with management, engineers, and production men at most of the country's leading pulp mills, turned their attention to helping them work out their waste gas odor problems. As a result of these experiences, specially engineered odor-masking compounds—Du Pont "ALAMASK" odor-masking compounds—were developed.

In actual mill operations, the use of "ALAMASK" has effectively reduced the noticeable malodors. As these operations continue, priceless good will is being built for the mills with their communities and with their employees.

Perhaps Du Pont "ALAMASK" odor-masking compounds, combined with Du Pont experience in the pulp and paper industry, can be the answer to your odor abatement problem. For information and technical service, write to E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Wilmington, Delaware.

Du Pont **Alamask**

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Odor-Masking Compounds

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. . . THROUGH CHEMISTRY

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New Moore & White cylinder
Magnesia & Asbestos Comp
trate various machine sectio

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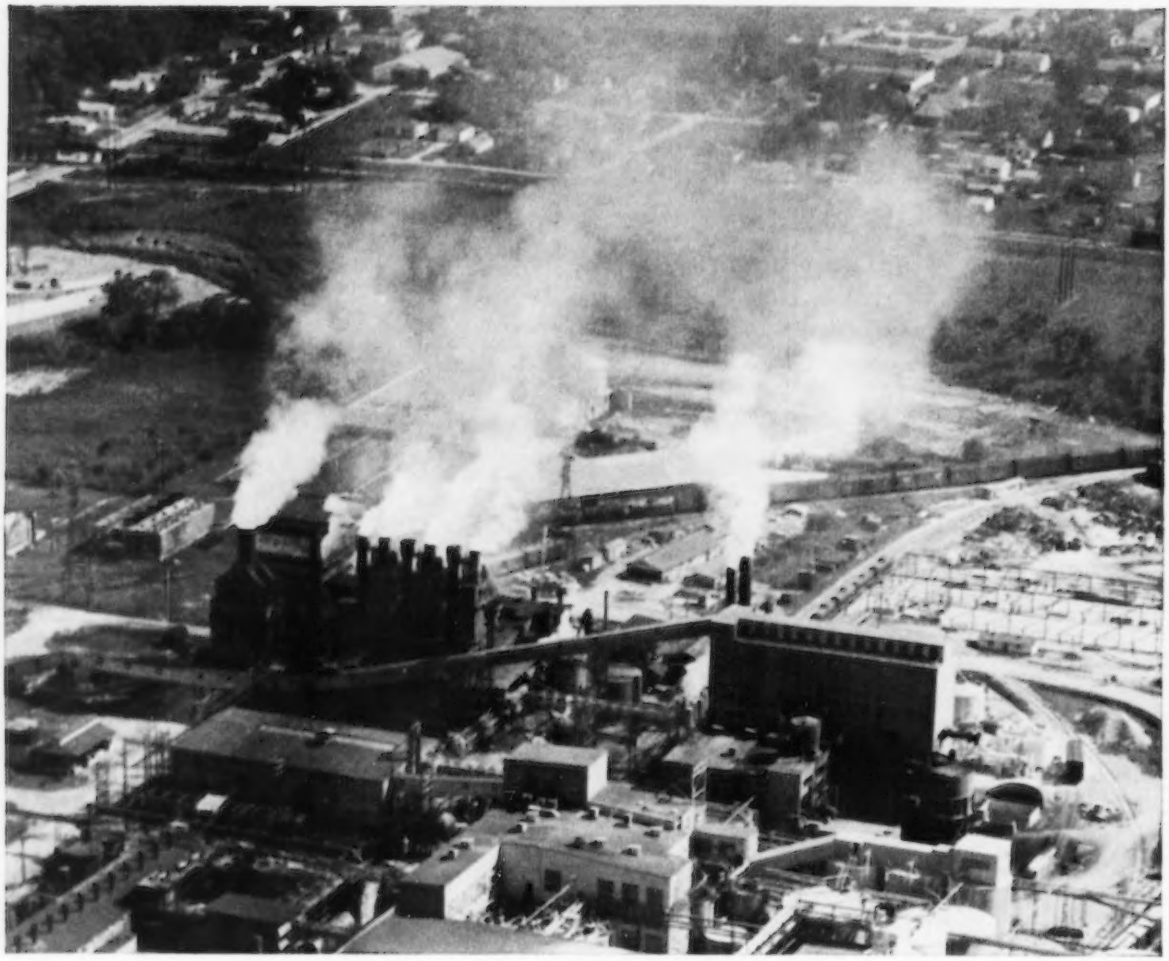
32. PA. • CUSTOM-BUILT MACHINES FOR PAPER MAKERS



There's good will in the air

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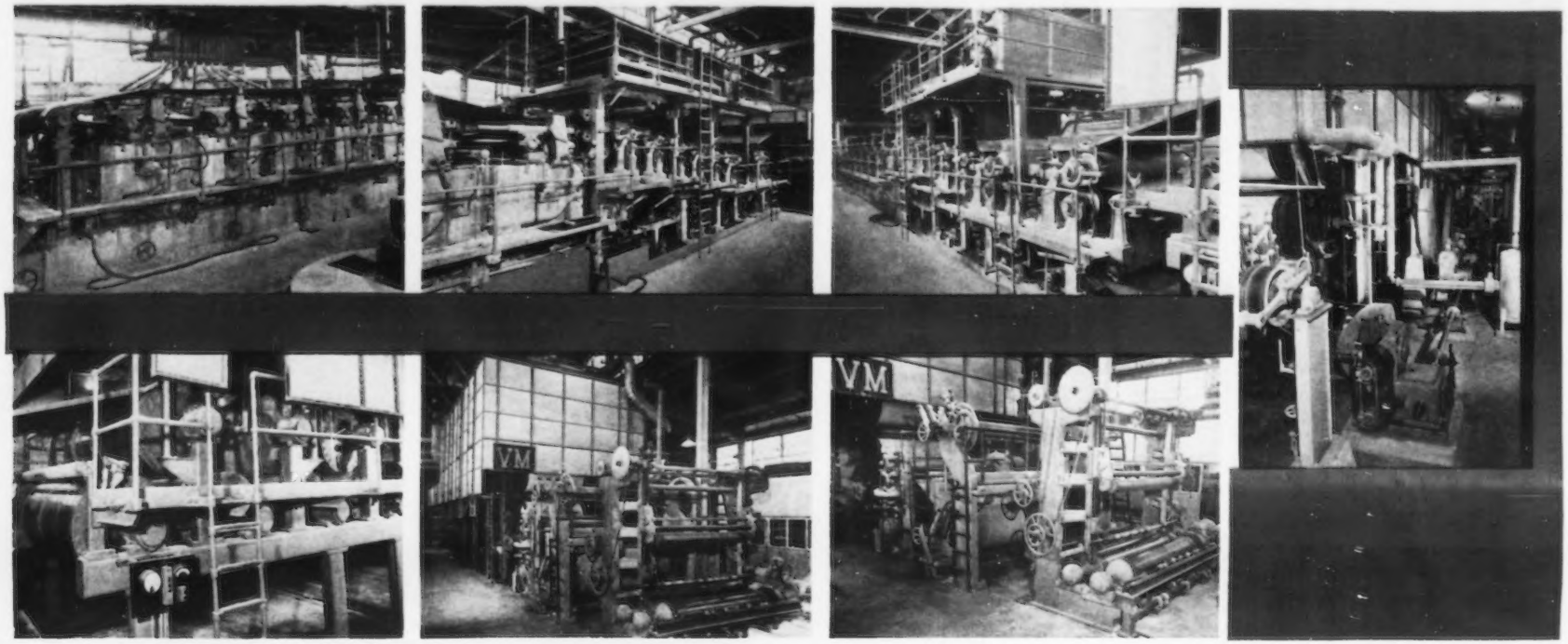
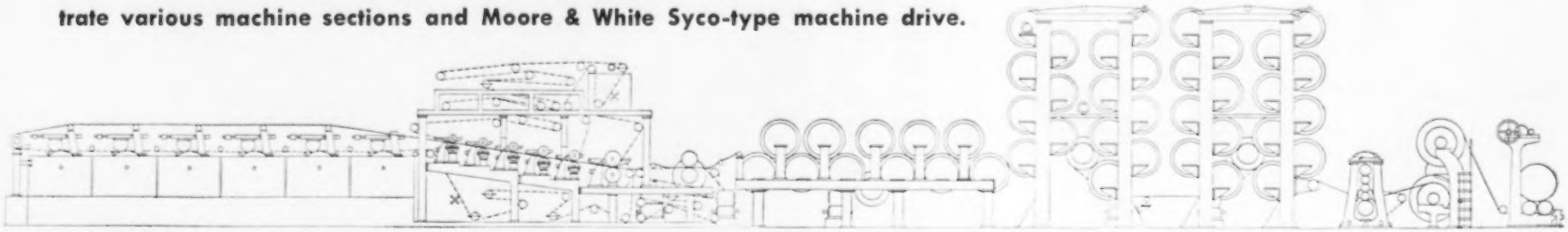
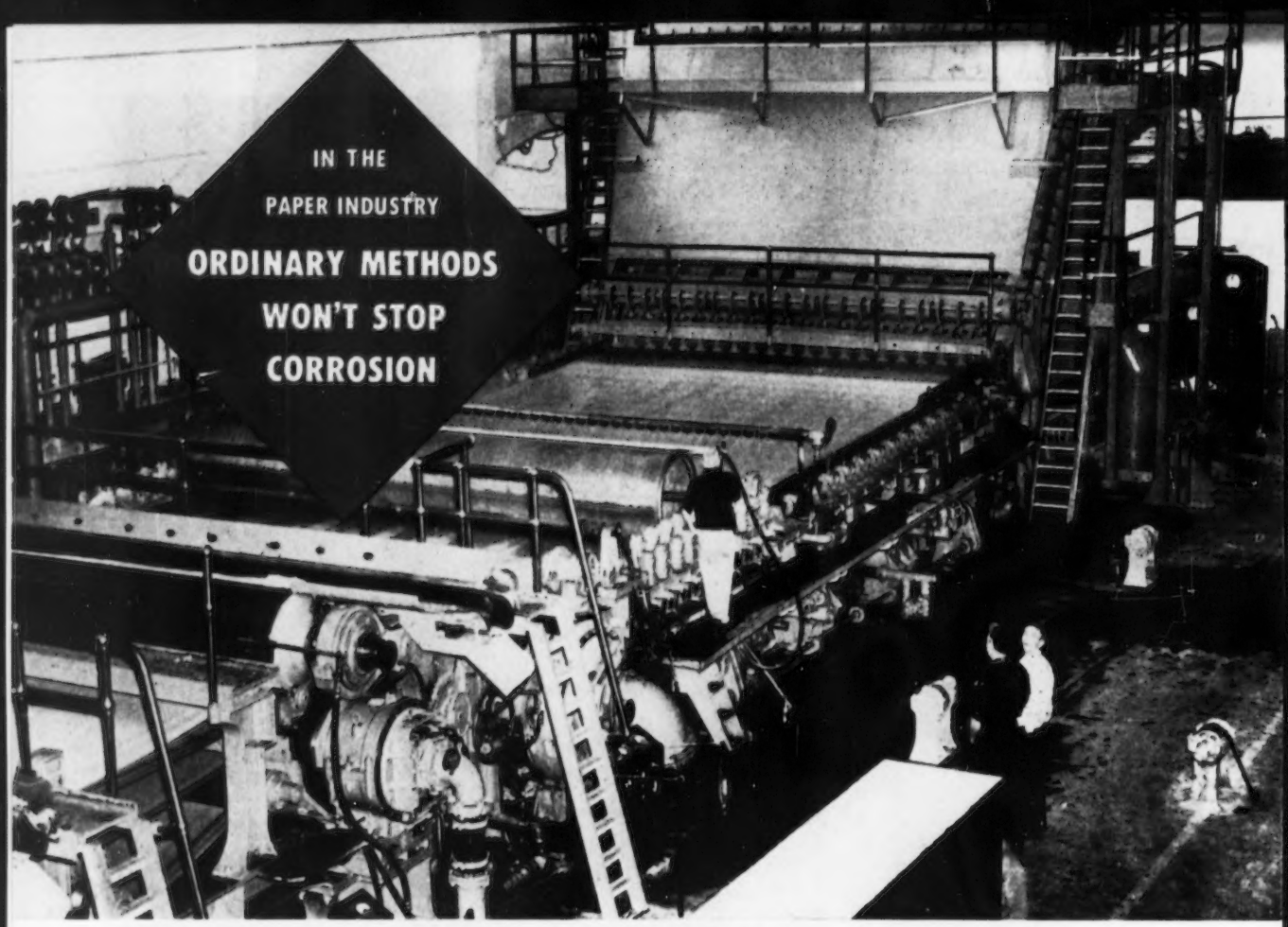


New Moore & White cylinder machine installed at the plant of The Norristown Magnesia & Asbestos Company, Norristown, Pa. The photographs shown illustrate various machine sections and Moore & White Syco-type machine drive.



The MOORE & WHITE Company 15TH STREET AND LEHIGH AVENUE, PHILADELPHIA 32, PA. • CUSTOM-BUILT MACHINES FOR PAPER MAKERS



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REMEMBER THESE DATES

JAN. 27-29, 1954: Technical Section Annual Meeting, C.P.P.A., Sheraton-Mount Royal Hotel, Montreal, Que.

FEB. 14-19: Annual Meeting, APPA, Waldorf-Astoria Hotel, New York, N. Y.

FEB. 15-18: Thirty-ninth Annual Meeting, TAPPI Commodore Hotel, New York, N.Y.

JUNE 21-25: National Meeting, APPMSA, Sheraton-Mount Royal Hotel, Montreal, Que.

PAPER TRADE JOURNAL

Published Weekly Since 1872

NOVEMBER 20, 1953, *Vol. 137, No. 21*

Bowaters Start-Up Set for April 11

New Approach to Stream Improvement 12

Some Answers to Problems in Handling Stock Flow to Forming Elements 14

"The solution of the hydraulic problems involved is not based on one unchanging set of conditions," says Allen A. Lowe of Sandy Hill Iron & Brass Works.

How New Bleaching Plant Was Built by Gaspesia 20

This 350 ton sulphite pulp bleaching plant includes such late developments as a 30-ton Kamyr type blending tank in advance of the bleaching process and a continuous hypochlorite bleach liquor preparation system.

Research as a Career in today's Pulp and Paper Industry 24

J. J. Eberl, Director of Chemical Research at Scott Paper Co. shows "how an industrial research program can be tailored to the needs of the business and how dynamic is the job of research."

Rotary Feeders Used With Asplund Units 32

Local Meetings Calendar 36

DEPARTMENTS

Our Business	7	News of Suppliers	39
Trends	9	Prices	40
News of the Week	11	Prices of Materials	41
New Equipment and Supplies	32	Production Ratio	42
News of Associations	36	Paper People	42
CLASSIFIED ADVERTISING	45	ADVERTISERS INDEX	58

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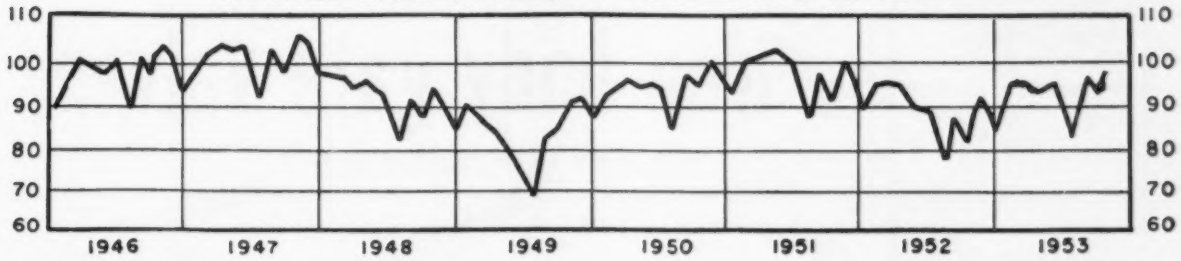
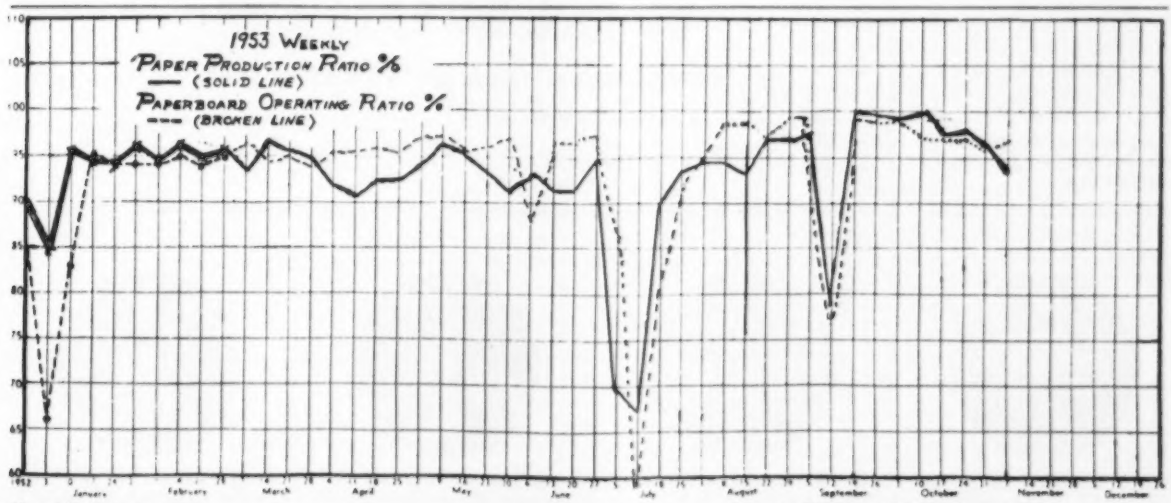
MONTHLY RATIO OF PAPER PRODUCTION TO CAPACITY

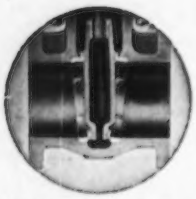


Brief of Important Figures

Source		WEEK ENDING Nov. 7, '53	Oct. 10, '53	Nov. 8, '52
APPA	Paper Production Percent Capacity[3]	94.6	98.3	90.7
NPA	Paperboard Operating Ratio Percent Inch Hours	97	97	97
		Sept. 1953	**Aug. 1953x**	**Sept. 1952**
APPA	Paper Production[5] (Except Newsprint and Building Papers) ....Tons	852,000	868,688	755,000
	New Orders ....Tons	872,000	865,554	804,000
	Unfilled Orders ....Tons	914,795	896,060	805,806
	Shipments ....Tons	852,000	867,729	748,000
		Oct. 1953	**Sept. 1953[2]**	**Oct. 1952**
NPA	Paperboard Production ....Tons	1,040,912	1,242,696	1,222,424
	New Orders ....Tons	892,929	1,383,242	1,255,736
	Unfilled Orders ....Tons	423,728	590,808	452,959
	Our Customers Activities Index[1]	**Latest Mo.[c]**	**Previous Mo.[c]**	**Year Ago[c]**
FRS	Durable Mfg. Index	313	313	269
	Nondurable Mfg. Index	201	192	195
	Printing and Publishing Index	174	161	157
ODC	Magazine Advg.-Printer's Ink Index	382	420	369
	Prices Index			
BLS	Consumers Price Index[4]	115.0	114.7	114.3
	Wholesale all Commodities[4]	110.6	110.9	112.2
	Wholesale Pulp, Paper[4] and Allied Products	116.2	115.8	115.6
	Purchasing Power of Dollar, Consumers Prices[4]	87.0	87.2	87.5
	General Activity Index			
FRS	Mfg. Production-Worker Payroll[4]	151.3	149.0	134.2
	Unemployment Compensation Initial Claims (M)	807	1,036	733



[1] New 6-7 day basis.
[4] New Index 1947-1949=100.
[5] For details see APPA Monthly Statistical Summary—September 1953 Estimated Figures.
[c] Latest Month Available on Request.
x Revised Figures. N.A.: Not Available.
[2] For Five Weeks.



Straight-Flow Port Design reduces fluid turbulence to a practical minimum.

Seat Rings of end-seated type are screwed into the body.

Sure-Grip Malleable Handwheel for non-skid gripping even with heavy gloves.

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with screwed or flanged ends

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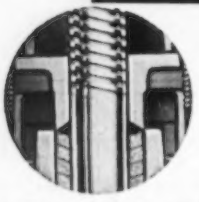
For complete information on these new Walworth Iron Body Valves, see your local Walworth distributor, or write for bulletin 106.



Brass Liner on Glands assures greater resistance to corrosion and scoring.

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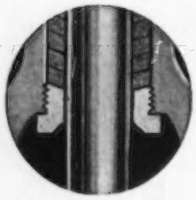
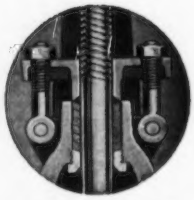
DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

T-head Disc-to-Stem connection on OS&Y types provides stronger connection, prevents loosening of disc by corrosion.



Bronze Back-Seat Bushings in bonnets of OS&Y valves.

Solid Web Type Disc in OS&Y valves for greater strength and longer service.



Hinged Gland Eye-Bolts on OS&Y valves permit faster, easier repacking under full pressure.

TRENDS

PAPER TRADE JOURNAL

Kraft Paper Mills Running At Capacity Output

The industry's heavy kraft mills are running full with a satisfactory order backlog. Accumulations of new orders are high, and the prospects are that the kraft industry as a whole will finish 1953 at a very good level.

Coarse Paper Production. Production of coarse papers — including glassine, greaseproof and vegetable parchment — during the year's first nine months was 4.5 percent ahead of the 1952 period. This trend is seen sustained at least to the year's end.

Supplies Are Tight. At the jobber level, the market position is not so pleasing. Supplies are reported to be tight and the worsening condition a source of complaint. There was a time when orders could be shipped in two to three weeks, men gripe. Now it takes six to eight.

The supply of domestic kraft wrapping is not easy; they can't get paper to sell. And what is even worse, when they get an order, the customer dickers about price.

Handle Less and Less. Wholesalers have cut to a minimum their sales of wrapping paper because of the slight margin of profit involved and rapidly rising overhead. (See *Trends*, October 2.)

Pros and Cons of Linear Measure Resolution

A portion of this high cost is contained in the double-weighing of carlots of kraft of no guaranteed weight. It must be weighed in when received and weighed again when shipped to the customer. Short-weight claims involve further loss of time.

Sale of coarse papers by specific linear measure rather than by scale weight is seen as a cure for these specific ills; and to this end members of the National Paper Trade Assn. adopted a resolution at their semi-annual meeting, reported *Paper Trade JOURNAL*, November 6 issue.

The Merchants Contend. Argued in the resolution for linear measure sale is that (1) merchant costs would be reduced by the elimination of scale weighing of roll papers — once upon receipt and again when shipped; (2) it would expedite outgoing transactions; (3) it would comply with existing state laws governing sale of commodities by weight; (4) it would remove any possibility of short weighting the consumer; and (5) because the sale by linear measure is more acceptable to the average consumer: it has a more practical meaning for him, is easier to check on, and is more in conformity with other items he purchases.

Mills Are Skeptical. At first glance, mill men are not convinced of the accruing benefits argued by the resolution. Also they are inclined to the belief that the guaranteed-length roll will involve time, which means dollars and higher cost.

If the market is practically without profit now, why push the kraft wrapping price up with the added time involved in getting linear measurements.

Merchants Doubt Upcharge. From the wholesaler angle, there should be no need for a time loss or an upcharge. Gummed tape, wax paper, tissues, towels, all are guaranteed measure, it is said.

The stand taken by some is that the changeover to linear measurement would mean only the installation of measuring devices of the rewinders.

Such measurement would wipe out mistakes on scales and resultant claims of short weight which involve time in follow up. A net gain to all should accrue, wholesalers believe, in arguing mill acceptance of the resolution.

Limited Buying In Argentine Casein

Limited activity is reported in the local casein market. For the most part, buying is restrained and prices unchanged at about 21 to 21½ cents duty paid.

Some easing is noted in Argentine lots held here from rockbottom levels of last season. Quotations on these stocks of 20 to 20¾ cents are said to be lower than replacement costs in the Argentine.

Slightly Lower Levels Seen. Outlook for the imported price is for slightly lower levels than prevail today. Ideal weather in Argentina supports good production, and there is likely to be an abundant casein supply this season.

Carryover stocks are held to be about normal, world market buying active. Thus the dual factors which developed last season's giveaway prices have been eliminated.

Looked for as the flush production progresses is a decline to a 20 cent duty paid price. At that point, the Argentine product could stabilize, providing supply and demand sustain current highs.

See High-Priced Rosin As Demand Strengthens

Higher price levels are ahead for gum rosin during the remainder of the crop year of 1953-54, according to *Naval Stores Market News*.

Demand has been strengthening gradually at both domestic and export levels since mid-August. Should this vigorous demand continue, virtually all of the pale grades of rosin placed in the 1953 Loan will be redeemed and, says the USDA report, it is probable that sales may be made out of the CCC reserves holdings acquired under prior programs.

Domestic, Foreign Developments. Domestic and foreign developments have combined to induce this market strength. First, the U.S. rosin output is down 2 per cent from the 1952-53 record. Second, the European output on which countries such as the United Kingdom, Germany, Italy, Netherlands, Belgium, and others depend, has sharply declined at a time when post-Korean stockpiles in these countries were being exhausted. Consequently, U. S. exports of rosin will be greatly accelerated from last year's low of 357,000 drums.

Domestic consumption of rosin during the crop year ending next April 1 is expected to be at least 10 per cent greater than the 1,228,000 drums consumed a year ago.

Commercial Stocks Insignificant. Also, based on total disappearance for the 5-year period of 1948-52, CCC reserve holdings of rosin constitute a four months' supply. The total carry-over on April 1, 1954 is not expected to exceed that of the previous year, in the opinion of the Production and Marketing Administration, USDA.

Prices Hold Rise. A steady climb in prices is noted in all grades of gum rosin, with the drum price for papermaking grades during the week ended November 13 reported at $7.75 to $7.80, compared with $7.70/7.77 in the week ago figures. Early July prices for these grades were $7.30/7.42; in August 7, $7.40/7.45.

Approximately one-half of the total drum sale of 2100 during the week was for export, with buying interest centered on WW which continued the upward price trend. Other grades were steady to firm.

—E.P.N.

Paperboard Production (Tons)*

	Nov. 7 1953	Oct. 31 1953	Nov. 8 1952
Production	266,329	257,169	243,283
New Orders	355,840	227,040	372,747
Unfilled Orders	510,994	423,728	581,039
% of Activity	97	96	97

* Source: National Paperboard Assn.

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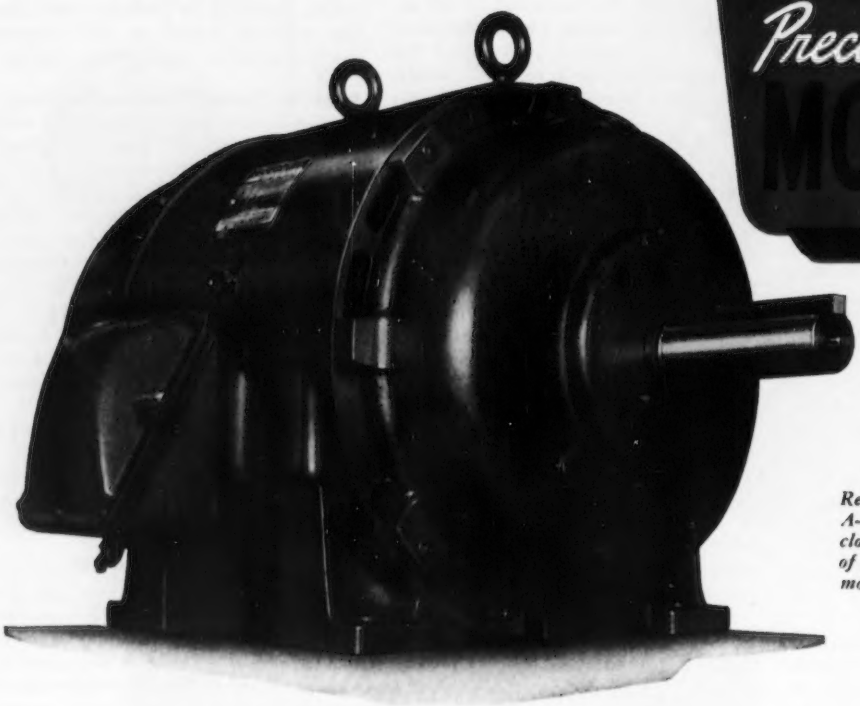

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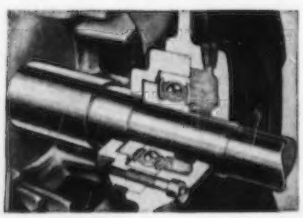
- ☆ Indestructible pressure-cast rotors
- ☆ Shock-resistant frame and bearing-bracket construction



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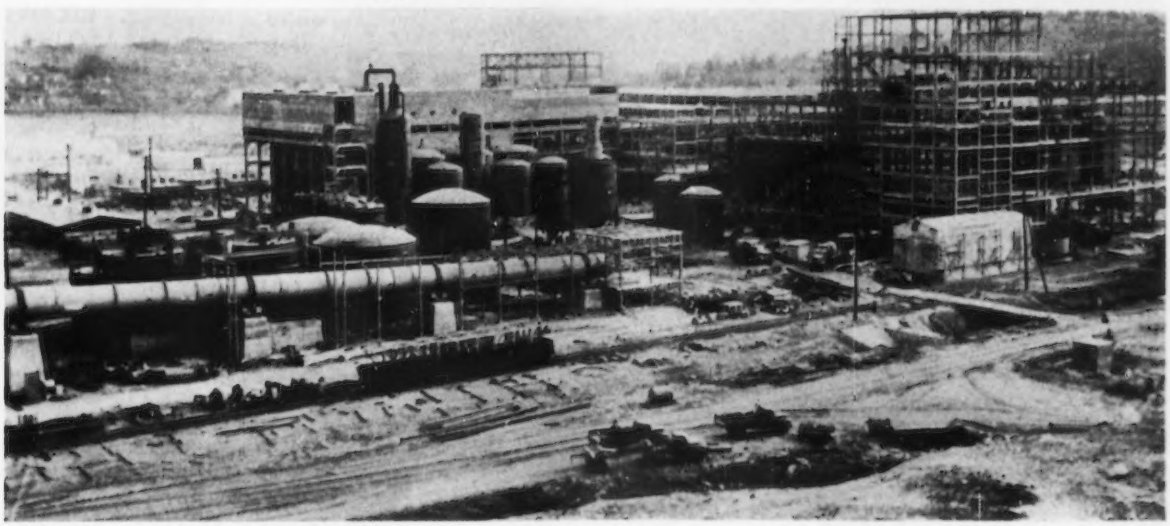
WEEK OF PAPER TRADE JOURNAL NOVEMBER 20, 1953



PULP AND PAPER MILL INSTALLATION taking shape rapidly on Calhoun, Tenn., site.

Bowaters Start-Up Set For April; Short Strike Causes Mild Delay.

The South's third newsprint mill, Bowaters Southern Paper Corp., is nearing completion at Calhoun, Tenn. The $55 million pulp and paper project is tentatively scheduled for start-up in April 1954. Construction progress was halted briefly on November 5 when 1,700 union workers refused to cross an AFL iron workers' picket line. However, the 200 pickets withdrew their "unauthorized" protest strike the following day. Friction between iron workers and carpenters was reported as the cause of the protest.

According to report, the frames for the paper machines are now in place; roofing on the various buildings is practically completed; work on the TVA power substation has begun; pump house up the Hiwassee River, filter plant, and sewage disposal unit are nearly finished.

Interesting features of the plant is the planned under-water storage of pulpwood. Karl O. Elderkin, general manager, built a scale model of a wood-storage pond and tested it with tiny pine logs. He confirmed the fact that the logs, after soaking and sinking, would remain in storage with much less decay than logs stored dry. The result is a wood storage pond 380 feet in diameter at the bottom and 500 feet at the top. It will store 30,000 cords of wood, enough to run the pulp mill six weeks. A photograph of this pond appeared in the July 24, 1953 issue of *Paper Trade JOURNAL*.

The Southern Newspaper Publishers Assn. at a recent meeting in Boca Raton, Fla., hailed the prospect of an additional local source of newsprint which the 120,000 ton annual output of Bowaters will represent. Association speakers remarked that with the combined output of Bowaters and the existing newsprint tonnages from Southland Paper Mills in Texas and Coosa River Newsprint Co. in Alabama, the south had made great strides toward self-sufficiency in newsprint.

Changes Name to New Haven Board & Carton Co.

On December 1, the New Haven Pulp & Board Co. will change its name to The New Haven Board & Carton Co. The company thinks this change a natural step in its development. It has entered a new field beyond the original conception of the company when it was founded in 1900 and incorporated in 1901. The company at that time employed approximately 35 people and produced about 30 tons of paperboard a day. Today, The New Haven Pulp & Board Co., with its subsidiaries, employs approximately 1200 people and now produces over 300 tons of paperboard a day.

In 1917 the company bought the La Have Pulp Co., Ltd., New Germany, Nova Scotia, which has an annual output of over 2,000 tons of extremely high grade mechanical ground wood pulp. However, it has always consumed the production from this mill, and has never actively sold pulp.

In 1937 the firm entered the folding carton business in New Haven and in 1945, the controlling interest in its subsidiary, The Bartgis Brothers Co., Ilchester, Md., was purchased.

Because New Haven is primarily manufacturing printed folding cartons and paperboard, it believes that it is only logical that the name be changed to The New Haven Board & Carton Co.

SHEILA CHARPENTIER of the Division of Visual Education, B. C. Department of Education, demonstrates the use of the classroom Paper Making Kit.

Paper Making Outfits for British Columbia Schools

High school students throughout British Columbia are going to have the opportunity to see how paper is made in the classrooms. They will be able to make some themselves. The largest individual educational project ever undertaken by an industry in Canada, a gift of a Paper Making Kit will be made to every high school in B. C. Teachers or students will be able to make an actual sheet of paper. Included is a lecture on "How Paper Is Made," from the growing seedling to the finished products.

The project is the result of the complete co-operation of individual mills, the Canadian Pulp and Paper Assn., equipment suppliers and the Division of Visual Education, Department of Education. A number of teaching techniques combine to ensure complete understanding by the students. A film strip traces each manufacturing step. A series of photographs demonstrates the correct way to use the Kit. A teacher's manual elaborates on each operation. Each step is tied into the corresponding stage of processing in the actual mill.

The Kit includes such items as lime rock, sulphur, and wood chips also screens and felts. There are large bottles of chemical and groundwood pulp—the ingredients in newsprint and other grades of paper. These are mixed in water in a large plastic jar and the mixture pumped through a screen to form the wet sheet. Subsequent rolling, pressing and ironing produces the finished sheet of paper.

Great Lakes Moves Head Office to Fort William

In a move to expedite operations at the Lakehead, Great Lakes Paper Co. is moving its head offices to Fort William, President W. Earl Rowe will continue his office in Toronto, but active management at the Lakehead will come under C. J. Warwick Fox, whose appointment as vice-president and general manager is also announced. Mr. Fox, who resigned his Quebec Legislature seat for a Brome constituency to take up his post at Fort William, has been associated with the pulp and paper industry for the past quarter century.

The move to Fort William has been planned for some time, Mr. Rowe said, to bring the executive offices closer to the scene of actual operations.

American Tissue to Reorganize

Claims against the bankrupt American Tissue Mills of Holyoke were allowed on November 5 in Federal District Court in Boston, and November 30 has been set as the date for the court's confirmation of the reorganization plan.

The general creditors, whose bills against the American Tissue Mills amount to approximately $580,000, will receive 17½ percent. There are secured claims of $140,000, which will be paid in full. Aaron Krok of Worcester owns the first mortgage on the properties, amounting to $290,000.

Under the reorganization plan Mr. Krok will take over after the plan is officially authorized by the court. He has agreed to invest another $600,000 to rehabilitate the concern. Atty. John I. Robinson of Springfield, the trustee of the American Tissue Mills, will continue to operate the concern until Mr. Krok takes over.

Spent Suphite Liquor Filtered Through Bark

In search of a new and effective approach to stream improvement, Falls Paper & Power Co., Oconto Falls, Wis., is using its huge pile of discarded bark for treating spent sulphite liquor.

Throughout its many years of pulp making, the Falls company has accumulated behind its mill two acres of useless bark piled 20 to 30 feet deep. Industry biologists decided that this bark pile might prove useful in fermenting the oxygen-consuming wood sugars which are the troublesome ingredient in spent sulphite liquor, and thus get rid of them before the liquor reaches the stream.

Using tank trucks normally employed in the company's roadbinder operations, mill technical men for some months have been pouring spent liquor on the bark pile. Only recently appreciable amounts of the fluid have begun to appear in the soil beneath the pile. Tests are now being run on soil samples to check penetration, direction of flow, and to ascertain what has happened to the spent liquor while making its slow trip through the bark pile.

If the test works out as hoped, it will mark a successful conclusion to an experiment on which Wisconsin sulphite mills spent hundreds of thousands of research dollars and may provide a method of treating dilute liquor and wash water at reasonable expense. A dozen years ago the Sulphite Pulp Manufacturers' Research League, working closely with the State Committee on Water Pollution, built at Appleton a pilot plant for testing on sulphite liquor the trickling filter rock pile technique that is widely used in treating sanitary wastes. The Appleton tests proved that the method would do the job, but only at a construction and operating costs that would put out of business any mill that might try to use it. So the whole thing was abandoned as impractical.

Expectation of industry technical men is that beneficial bacteria deep down in the bark pile and in the soil beneath it may eat the sugar out of the liquor. Desugared liquor cannot cause any significant stream pollution.

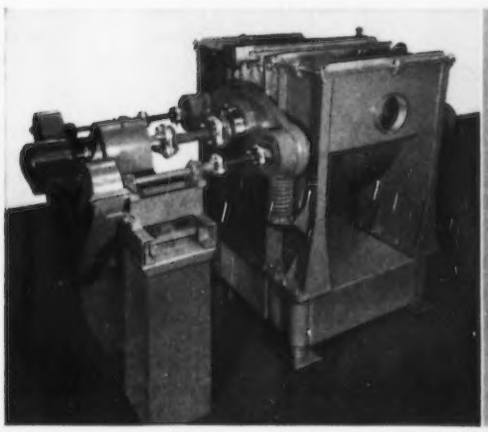
THIS IS IT!

This is the Screen that combines rotary and vibratory action to handle high consistency stock and lots of it, through slotted plates.

This is the Screen that has already proved itself — over 400 successful installations abroad, and many in this Country, some of them repeat orders.

This is the Screen that delivers from 60 to 90 tons of hard kraft stock per day at 1.5% or higher consistency; that produces 60 to 80 tons of semi-chemical pulp, using .018″ cut screen plates; that handles 100 to 140 tons per day of deinked stocks at 1.1 to 2.0% consistency; that works, and works wonderfully well on paper stocks hitherto considered unscreenable.

BIRD MACHINE COMPANY • SOUTH WALPOLE, MASS.



The BIRD VIBROTOR SCREEN

Some Answers to Problems in Handling Stock Flow to Forming Elements*

Allen A. Lowe

The Sandy Hill Iron & Brass Works

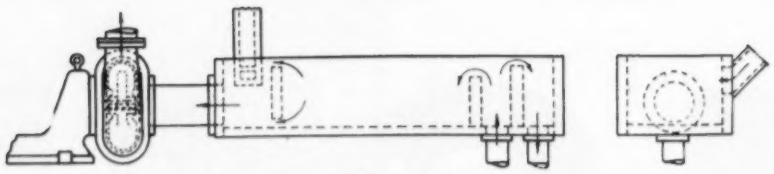


FIGURE 1 — Baffling of a pump inlet.

My subject is delivery of stock to the forming element. I wish, as perhaps do all men in the trade, that there were some piece of miraculous equipment in this part of papermaking. Current thinking on this subject is enormous; and prevailing answers to some of the problems are conspicuously successful. It is unfortunate, yet fundamental, however, that the solution of the hydraulic problems involved is not based on one unchanging set of conditions. The newsprint and kraft operators no sooner find a headbox which satisfies their high speed requirements than they jump up the speed one hundred or two hundred feet a minute—and the hydraulics change.

It is part of my theme that the delivery of the stock to the forming element is influenced by all parts of the cycle — from the initial point of mixture to the point of delivery to the wire cloth or cylinder mold circle. The other part of my theme is that when the operator finds an improved means of controlling delivery of the stock to the wire or circle, he is prone to forget that all other parts of the cycle are still important; and, by neglecting their careful design and arrangement, he loses some of the advantages gained.

In this cycle are: (1) the mixture of the thick stock with the conveying liquid, (2) the accumulation and handling of the conveying liquid, (3) the maintenance of the mixture, (4) the avoidance of air entrapment, and (5) the delivery to the forming surface. Some few years ago, when headbox, pond, and slice designs were not as good as now, progress was made by improving the design and arrangement of other parts of the whole scheme.

The old pump box was an adequate device for insuring thorough selection and blending of white waters of varying fiber contents when gallonage requirements were small. *Figure 1* shows such a scheme. The high fiber content white water, as received from the saveall pans, takes the required amount of suction box water, and provides escape for the excess water in the cycle. Also, it provides a special place for blending the thick stock. The layout might be better (cascading would be avoided), if the suction box water flowed under the dam instead of over it. Wherever there is cascading, air is entrapped.

A comparatively recent personal observation, made in a mill of modern design, revealed the cascading of the thick stock overflow from a vat distributing box, i.e., any one of four stocks to any one of eight vats. From the trough of the distributing box, set high above the screens, the stock plunged down ten feet or more.

The question could be raised as to whether mixing in the machine chest would not absorb all the air which must have been carried by the stock. A considerable amount of foam, however, was released in the screens. This foam probably was caused by the air entrapped in the fiber bearing mass in the cascading of the stock.

The lower the thick stock measuring box, the less cascading on the way to the point of mixture, therefore, the less chance of air entrapment with resultant release as foam.

I have seen an enormous amount of foam inside a rotary screen practically eliminated by stopping cascading in certain parts of the machine circuit. This observation and others support my belief that the entrapment and release of air are practical and formidable considerations in the design of a paper machine circuit.

The baffle before the entrance to the pump in *Figure 1* is there to prevent any possibility of heavy fiber content water getting back to the mill white water

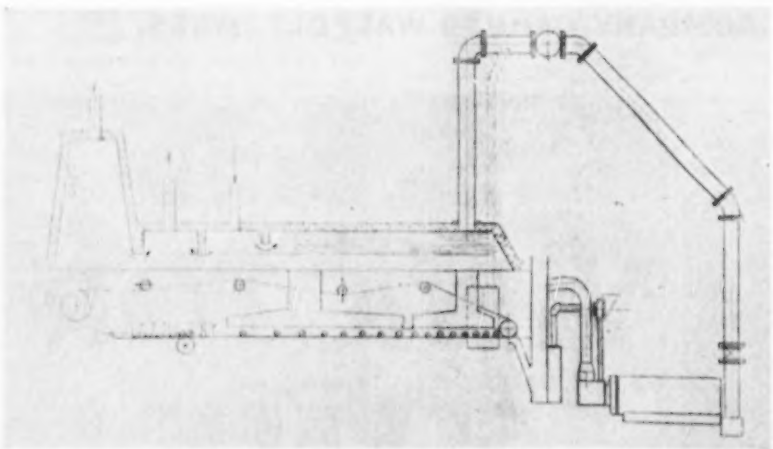


FIGURE 2 — Typical Fourdrinier flow scheme where pit is used to accumulate and/or select white water.

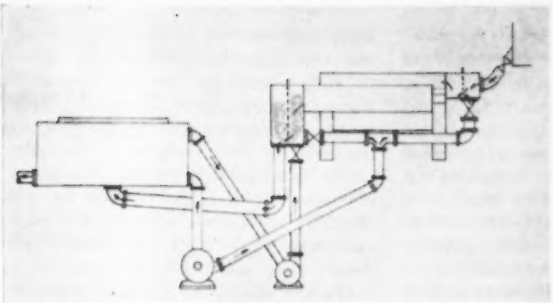


FIGURE 3 — above — Typical cylinder vat flow. Includes overflow as used on a direct flow vat, but eliminated on a counter-flow vat.

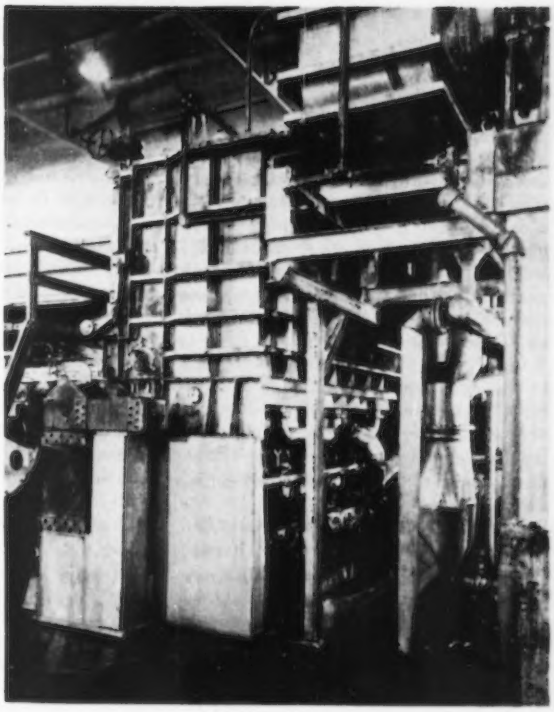


FIGURE 5—at right—One of several Sandy Hill-Bertrams flow control units operating for the same company. Pictured unit operating on 186" high speed fine paper machine.

system. This scheme avoids cascading, air entrapment and air release and concentration within the limits of its capacity.

Enormous increases in the gallonage in the circulation system on the machine, however, have led to the use of the pit as a pump box *(Figure 2)*. There is no reason in this setup why the same basic scheme as in the old time pump box should not be utilized. The automatic feature of draft from the suction box water and the overflow to the mill white water system are present. There is no need for instrumentation for its own sake.

The point where thick stock is introduced into the white water is deserving of consideration. While my concept on this point runs into a lot of successful theorizing to the contrary, I still feel that a virtually free fall, comparable to the old pump box scheme, is the best idea.

An example of valuable instrumentation is the use of a liquid level device in the thick stock measuring box to control the valve checking the thick stock pump. Through its use the cascading of stock in the overflow of the box may be avoided. This control eliminates the need for a return flow to the chest and thus piping for such return flow. However, there is the possibility of a layer of dormant stock developing at the top of the compartment controlled by the liquid level device.

There must be many installations where the thick stock is introduced into the eye of the main circulating pump of a machine. Such installations would be on machines where the white water is accumulated and controlled in the pit. Possible inadvertent hazards of such practice are: introduction of right angle elbows in the stock line between the point of metering and the point of introduction of stock into the line ahead of the pump; introduction of a horizontal run of pipe in the same stock line (no slope less than 45° should be used); and use of pipe of too small diameter.

From a thick stock box on the machine floor beside the headbox to the eye of the pump is very little more head than that from the level of the white water in the pit to the same point. On the start-up, with water filling the system, the water is at pit level. When the thick stock is turned on, dilution starts well up in the pipe. Without being able to put

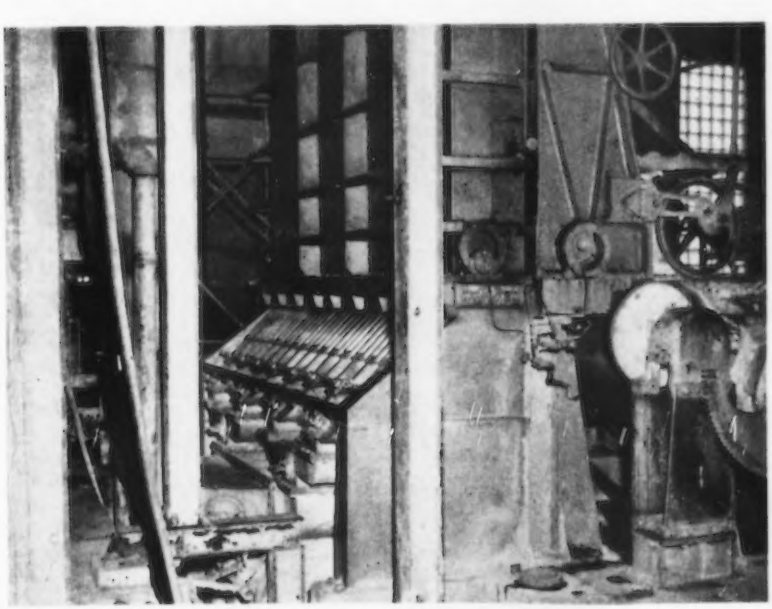


FIGURE 4 — Sandy Hill-Bertrams flow control unit operating on 136" high speed fine paper machine. One of two installations in the same mill.

my finger on "why," this practice doesn't always work out. The pipe from the measuring box to the pump is a hazard.

Joining the thick stock pipe into the white water draft pipe so that the pump draft will also pull on the thick stock pipe may completely overcome the hazards. However, without being able to overcome highly theoretical arguments, I would like to see the thick stock, in a practically free fall condition, drop into the opening in the pit leading to the intake pipe of the pump.

Clark and Vicario have done some useful and practical work on the removal of air from stock that goes beyond ordinary de-aerating in an open top tank. There is no doubt that air is carried along by the rush of fiber bearing water.

I do not know whether air is attached to the individual fiber or is carried along by the mass of stock. I do know that cascading causes air to be entrapped in the mass of moving fiber bearing water and that a substantial portion of the air separates itself at some point further along in the system.

That air separates from the stock is clear to any operator who has tried to run a cylinder mold vat where the approach pipe runs on the level or, what is even worse, down hill.

I have stopped air from appearing at the discharge points of a Bertrams distributor by slowing down the rate of flow — not through the distributor — but in the pipe from the machine circulating pump. In one case, I found the rate to be 20 feet per second. A change in pipe diameter to reduce the flow to eight feet per second eliminated the air.

By enlarging a pipe size arbitrarily, that is, by just making it bigger without attempting to reach any particular rate of flow, I have eliminated half the foam in an aggravated condition. Foam definitely can be a product of entrapped air — not exclusively, but certainly in part.

So I urge you to consider whether the piping from the circulating pump is adequate in size. I think that eight feet per second through a pipe in the machine circulating scheme is plenty fast enough.

Air in a stock flow, whether clinging to the fibers or as bubbles in the liquid, will accumulate in pockets if pockets are provided. Flow through pipe lines on a free downward flow should be controlled to avoid plunges.

I have no simple answer as to what should be done about the flow to a rotary screen. The screen, with some thought for the future, is provided with greater capacity than that of the machine; and there usually is some cascading from the inflow boxes to the pulsating vat.

Collecting boxes after the screens should be designed to permit the maintenance of a level in them comparable to the highest level that can be carried inside the screen vat.

The design of centrifugal dirt extractors is necessarily based on performance requirements. May the suggestion be made that in installing after piping, receiving boxes and piping to the screens or headboxes, consideration be given to the possibility of air accumulation.

Cascading of stock must be avoided if air bubbles are to be absent from the stock. Likewise, it is desirable to avoid pockets in which air may accumulate to irregularly interrupt the laminar flow (the papermaker's dream) of fibers.

Now we come to one of the great controversies of the paper business — why screens, especially if no dirt or pipe scale?

Board mills *(Figure 3)* which use low grade stock, to my knowledge, have not been bitten with the wipe-out-the-screens bug. I am fairly familiar with board mills using one hundred per cent virgin pulp as well as with mills using mixed paper fillers, and little better for liners; and screens of some kind are used everywhere. The problem as to where is the last chance to remove dirt is understandable. How far the removal of screens would affect individual fiber suspension and sheet formation is something the operator may be able to answer.

It is interesting to observe that in the selection of screens for board machines, the choice has turned back to flat screens of modern design.

Two fourdrinier mills, operating on virgin pulp, took out their screens. The idea was that screens produced slime holes in the papers. Today, the operating organization in each mill is not sure that it got enough slime elimination to compensate for loss of formation. Among the top supervisors in both mills are operators who favor replacement of the screens.

May it be pointed out that in a group of paper mills where screens are not normally used, one of the most conspicuously successful operators uses them.

The overwhelming practice in the industry is to pass the stock through slotted plates just before it goes to the headbox.

On fourdrinier machines, the passage of the stock through a pump insures thorough mixing. The rate of flow through the system pipes maintains the mixture. Consistently, the flow is not less than 3 feet per second; often it is much faster. Finally, thorough dispersion of the separated fibers insured by their passage through slotted plates.

From here on, the joint problem of maintenance of the mixture and dispersion of the fibers becomes acute.

The travel of stock to the headbox involves three distinct and yet interdependent phases. Individual study should be given to each of them.

Improvement in one part of the cycle should be retained when another part is improved. The ultimate result should be the sum of the improvements. However, as said previously, there is a tendency in the trade, while giving merited applause to an improvement in one part of the machine cycle, to forget and even to throw away previous steps in advance.

The first phase to consider is the delivery to the pond *(Figure 4)*. It is com-

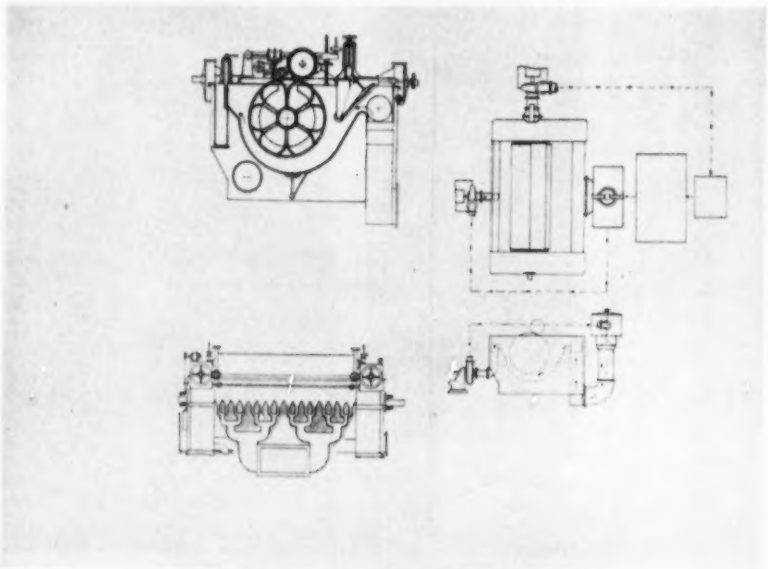


FIGURE 6 — Scheme of Sandy Hill special vat.

mon practice in the trade to collect the stock in one pipe. This arrangement wipes out the differences in discharge from individual screens which otherwise would persist far down the wire. The conventional headbox of several passes —usually of too great area in the pass— is gradually leaving us; and, in its place, are being offered various new methods of delivering stock from the screens to the pond.

The Sandy Hill solution is to divide the stock collected from the screens into a number of equal currents *(Figure 5)*. Estimation of the rate of flow through the passages of a multiple manifold is difficult. However, we know that book stock at a speed of 1 foot per second will not accumulate in stainless steel passages or on the walls of our design. Calculations of speeds around six feet per second show a beginning of cavitation around the bends.

Within these limitations, the collected stock from the screens is broken up into 8, 16 or 32 equal discharges with a resultant distribution in the pond superior to one big current. Maintenance of mixture and dispersion is achieved without accumulation of air bubbles at any point.

A de-aerating box *(Figure 6)* of suitable size is provided for the flow whether from a static head or from a pump. Possibility of cavitation ahead of the downflow pipe is avoided by design of the approach flow box. Every stream of the multiple manifold travels the same distance and under the same conditions as every other. The best condition of discharge to the pond is achieved in the merger of the multiple individual streams and in which the fibers have had no chance to floc.

Now comes the second phase of the combination — a phase which presents serious hazards to the maintenance of the dispersion. To look at some figures briefly: A machine with 150 inches trim, running 500 feet per minute, and making paper weighing 40 lb. (500-24 x 36), will make 60 tons in 24 hours. Assuming a consistency of ½ of 1% in the headbox and of .17 of 1% in the tray water, the flow in gallons per minute under the slice will be about 3000. If the pond depth is 13 inches and it is 35 inches from back of pond to slice, the flow will be just under ½ foot per second — the retention time will be about 6½ seconds. If the machine is speeded up to 1000 feet per minute and the pond becomes 52 inches deep—all other conditions remaining the same—the flow through the pond will be just under ¼ foot per second—the retention time nearly 13 seconds. Such figures are indicative of the problems of maintenance of distribution and dispersion.

In the case cited above, the rate of flow could be increased to one foot per second for 60 ton production by limiting the pond depth to 6½ inches. A 120 ton production, assuming the same depth of pond, would give a rate of flow of nearly two feet per second—but how are we to get proper delivery to the wire with such ponds?

It occurred to Voith in Germany, to Scott Paper Company, and to other original patentees, that if a headbox were enclosed, it would improve the maintenance of mixture and dispersion and would make it possible to increase the rate of flow.

Several companies have built wholly enclosed headboxes which operate. If no unforeseen difficulties arise, the improvement of the rate of flow through the pond brought about by their use must be of advantage. However, a box with a ceiling that is virtually a layer of air must be used to meet the situation which would arise if the stock in passing through the box de-aerated and formed an air pocket in the dome.

The rate of flow through the pond and the retention time is dependent on the permanent depth selected. The rate of flow into the pond approach on a Bertrams installation is about two to three feet per second. For a wire speed of 500 feet per minute, the rate of flow under the slice is 8-1/3 feet per second; for a wire speed of 1200 feet per minute, it is 20 feet per second.

The rate of flow through a pond can drop down to a quarter of a foot per second. The effect of this slow down on the retention time is a major part of the papermaker's problem of maintenance of mixture and dispersion. Also the slowing down and speeding up of the rate of flow probably has an effect on the dispersion of the fibers and ultimate formation. However, I do not know of any principles which have been set up to cover this situation.

Sandy Hill has made substantial progress in integrating the variables or gallonage, pond depths, retention time and rate of flow to and through the pond and from the slice.

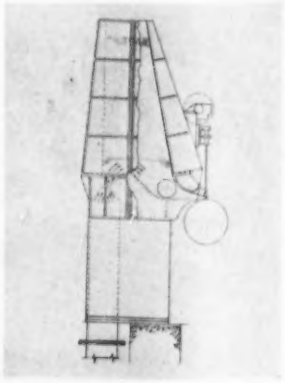


FIGURE 7— Sandy Hill high head slice and pond: nozzle type slice.

A present day device for maintenance of dispersion is the holey roll — the distributor roll. This roll has proven itself to be one of the most important incidental devices in high speed machine operation. Practice sometimes calls for putting as many rolls in the pond as the pond will hold.

The value of the holey roll is not necessarily confined to dispersion of the fibers in the water. Located immediately ahead of the slice, it can initiate little currents on the headbox side of the slice which will merge on the wire and form the sheet.

On one closed pond slice, rumor has it that the flow under the slice was too smooth to give good formation to the sheet. There were no little currents to merge.

Here are three everyday questions about the holey rolls: How close to the slice can the holey roll go? How fast should the holey roll be driven? Should the holey roll turn with the top traveling toward the slice or vice versa?

Since papermakers' answers to any one problem are not identical, the rolls must be built so that position, speed, and direction of travel can be varied. Also, a honey roll should not be designed on the basis of how small it can be and pass the probable gallons, but rather on how big it can be and not stick out of the stock in the pond. A fairly large corner between the holey roll, slice and apron board seems to eliminate the little bubbles produced by the roll running close to the slice. A double holey roll ahead of the slice seems to be in good favor.

Other pond devices which are not in such good favor, although they are operating here and there to the satisfaction of individual operators, are the perforated plate or drilled board (in effect a non-rotating holey roll) and parallel plates. The trend in meeting the pond problem is toward a reduction of retention time and employment of holey rolls to improve dispersion of fibers in the water.

There are three major classes of slices —the vertical slice with top tipped toward the headbox so that the lip of the slice may be deflected at intervals across the machine, the curved top lip slice, and the Voith nozzle type slice *(Figure 7)*. The Voith nozzle may be adjusted to approximate either the curved lip or the tipped back straight slice.

The variation in gallonage passing through a nozzle creates a design problem. If the curve or slope of a nozzle is designed for one gallonage or for a small range of gallonages, the effect is lost just as soon as there is either a change in gallonage or in machine speed, or both. The flat top lip and apron board nozzle is one of the best devices

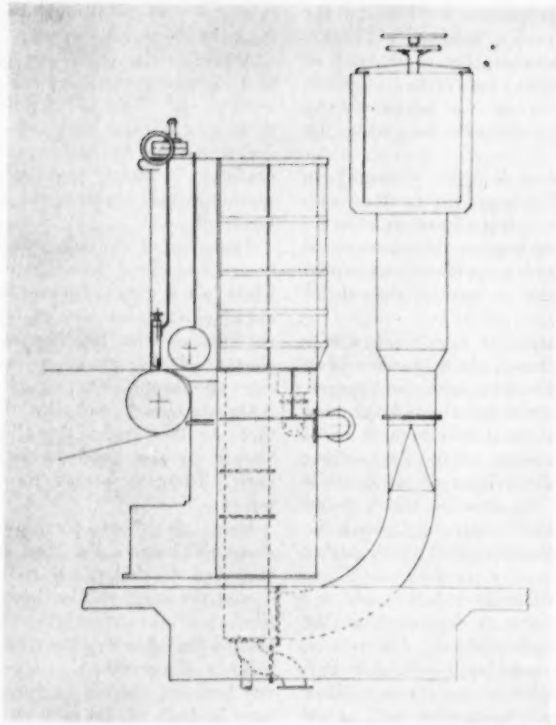


FIGURE 8 — Sandy Hill moderate head slice and pond: vertical slice—adjustable lip.

to meet such variations in operation. It is adjustable over a wide range. However, with it there is the possibility of negative pressure against the top lip with attendant interference with orderly discharge under the slice.

The vertical straight slice with adjustable lip *(Figure 8)* is regarded as one of the best. Improved conditions resulting from reduction of retention time and use of holey rolls for dispersion throw less burden on the slice.

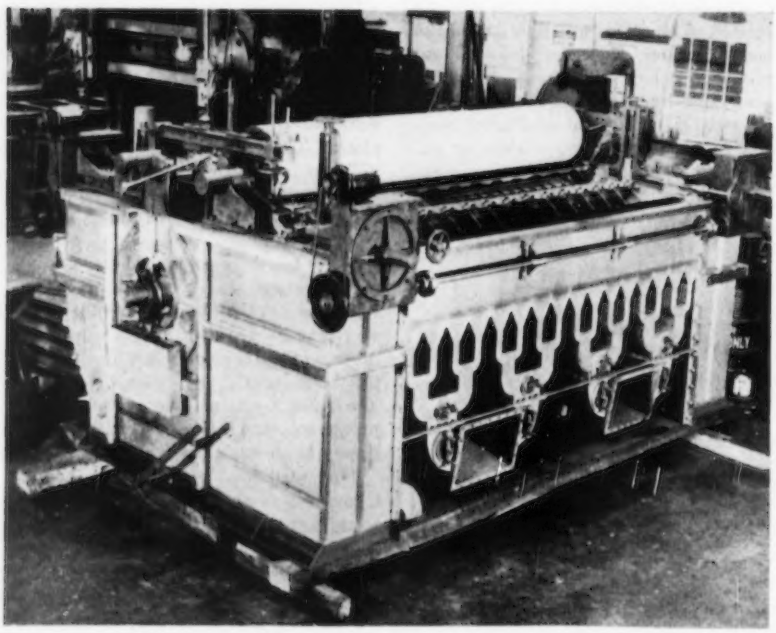


FIGURE 9 — Sandy Hill stainless steel adjustable cylinder mould featuring Bertrams inlet opening on 126" roofing felt machine at a rate of 100 tons per day.

Improvements in the flow to the pond, the pond itself and the slice should be made without losing the value of previous improvements in other parts. The presence of entrapped air and of flocced stock may be caused by inept design or arrangement ahead of the flow to the pond.

A case may be made out for study of the screen and vat circuit, either on a single vat or a multi-vat cylinder machine. Up to the point where the stock leaves the headbox of a vat, flat or downhill runs, cascading, small piping and other similar considerations should be avoided.

In the run from the headbox to the vat, the rate of flow can be improved, air can be eliminated, and the mixture and dispersion of fibers can be maintained. The Sandy Hill solution of delivery to the circle is again the Bertrams flow distributor *(Figure 9)*. Tied in with it is a holey roll for final maintenance of dispersion, and an adjustable slice for final control of rate of flow into the circle.

The paper mill operator and the mill designer must consider all of the factors which influence entrapment and accumulation of air, maintenance of mixture, dispersion of fibers and distribution of the fiber bearing liquid at the point of discharge under the slice, as well as select what appears to be the best slice for the purpose at hand.

Air entrapped and forced into the stock at any point of the machine circuit may reappear at the slice to the detriment of formation. Also, flocing at any point subsequent to the mixing of the thick stock with the white water may persist right down to the slice.

To the operator of installed equipment, may I suggest that he check his scheme point by point for possible improvement — even a long way from the slice; and then, when installing new equipment, please don't discard some well thought out and valuable combination in another part of the circuit.

* Paper presented at the Fall Meeting of the New York-Canadian Division of The American Pulp and Paper Mill Superintendents Assn., Saranac Inn, Upper Saranac Lake, N. Y.

State Aids Local Forestry Improvements

The Wisconsin state legislature has passed a bill making a deficiency appropriation of $235,000 for aid to local communities in financing forest crop improvements.

Payment of the money for the fiscal year of 1952-53 had been held up, pending a State Supreme Court test. The court held the appropriation constitutional in a verbal decision made in October, followed this month by a written opinion confirming its earlier ruling.

TROUBLESOME FOAM PROBLEMS?

BEATER SWELLING

STOCK PUMP BINDING

FOAM AT THE SCREEN

FOAM ON THE HEADBOX

FOAM SPOTS IN THE PAPER

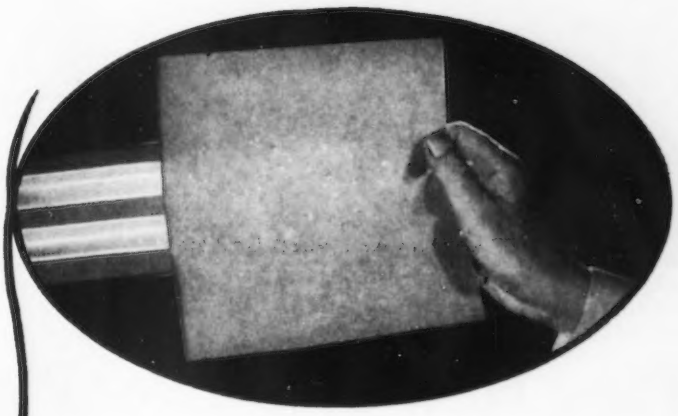
FIBER FLOCCULATION

FOAM IN THE WIRE PIT

FOAM AT THE MIXING BOX

FOAM AT THE SEAL BOX

FOAM AT THE SAVE-ALL



Get help from new low-foaming MERSIZE

Excessive foaming can raise troublesome, costly problems throughout the papermaking process. And, of these problems, one of the most serious is *foam spots in the finished paper.*

To reduce chances of foam (free) spots—and to minimize the other difficulties caused by sizes with a high foam index—more and more mills are switching to low-foaming Mersize. And, along with its new advantage in overcoming foam troubles, Mersize continues to give you high sizing efficiency and low sizing cost.

To prove to yourself how the drastically lowered foam index of Mersize can improve *your* operation, use a tank car under your own production conditions. MONSANTO CHEMICAL COMPANY, Merrimac Division, Boston 49, Mass.

Mersize: Reg. U. S. Pat. Off.

MONSANTO

SERVING INDUSTRY . . . WHICH SERVES MANKIND

FIGURE 1 — Crane hoisting Sherbrooke washer from train shed to operating floor.

How New Bleaching Plant Was Built by Gaspesia

The new sulphite pulp bleaching plant of Gaspesia Sulphite Co. is one of the largest and most up-to-date of its kind on the continent.

Latest advances in pulp bleaching have been incorporated in the sulphite bleaching plant recently erected by the Gaspesia Sulphite Co., Ltd. at Chandler, Que., on the Gaspe Peninsula. The Gaspesia Co. has been operating, since 1937, an unbleached sulphite pulp mill at this location. During the interval the mill has been so modernized and enlarged that the productive capacity has been increased from 130 tons of unbleached pulp in 1937 up to 275 tons today.

The company is a wholly owned subsidiary of Anglo-Newfoundland Development Co. which operates a large newsprint mill at Grand Falls, Newfoundland. The bleaching plant, which just began operation this fall, has a rated capacity of 350 tons per day and was financed through the participation of Comptoir des Matieres Premieres de la Papeterie (an association of French pulp consumers) and some American paper mills, through long term contracts.

The mill is still producing unbleached pulp for its regular customers of this grade.

Features of particular interest in the design of the plant are the large (30 ton) Kamyr type blending tank in advance of the bleaching process to even out any non-uniformity in the unbleached pulp; and the continuous hypochlorite bleach liquor preparation system, developed by Kimberly Clark, of which there are only a few in operation. Ample room has been left in the new building to house additional bleaching stages such as a chlorine dioxide or a peroxide stage. The entire 350 ton bleaching plant is operated by two men.

Engineering Details

The new bleach plant is located near the digester House and in such a position that the pulp which formerly was pumped directly from the screen room to the drying machine can be detoured out to the bleach plant and back into the pulp machine system. A new high head stock pump was required to pump 4 per cent stock from the decker chest to a 30-ton capacity agitated Kamyr type blending chest in the bleach plant. From this blending chest the stock is metered to the upward flow chlorination tower through a rotameter. From the top of the chlorination tower the stock flows by gravity to the washer and falls from the discharge side of the washer through a mixer to the high density downward flow caustic tower. From the bottom of this tower it is pumped back up to the top floor to a washer and from this washer falls in a similar washer into the first high density hypochlorite tower and, thence, in similar manner through the 2nd high density hypochlorite stage. from the 2nd hypo stage it falls from the washer into a screw conveyor which at the present time discharges into a high density stock storage tower but is so arranged that at a later date, the conveyor can be operated in either direction to discharge the stock into either of two similar high density storage towers. These storage towers are actually duplicates of the high density bleach towers and could be converted to additional bleach stages if desired. From the high density storage towers stock is pumped back to the pulp drying system.

In order to isolate the bleached and unbleached white water in the mill it was necessary to construct an additional white water chest adjacent to the drying machine so that, when the mill is operating on bleached pulp this chest supplies white water from the drying machine and for conveying the pulp from the Bleach Plant to the drying machine system. Overflow from this white water chest goes back to the main unbleached white water chest of the mill.

It was also necessary to construct a 2nd stock blending chest adjacent to the drying machine to care for broke from the dryer and to even out variations of consistency coming from the bleach plant storage towers.

The Kamyr type low density upward flow tower is 14'-6" diameter by 100' high while all of the Kamyr type high density towers are 17' diameter by 67' high. The IMPCO washers are all of stainless steel construction and are 11'-6" diameter by 16' long using variable speed electric drive.

Construction

The building is all steel framed reinforced concrete construction which duplicates the type of construction in the balance of the mill and which has proven to have very little maintenance since the original mill construction in 1914. The Kamyr type stock blending chests, only

one (1) of which has been completely finished for the present, are built as an integral part of the building and the top of the chest serves as the floor for the bleach liquor preparation room. On the upper floor the main crane rails were projected out through the end of the building as shown in fig. 1 Using these rails, the permanent trolley and chain hoists equipped for a 90′ lift were used to raise the Sherbrooke filters from the platform of the train shed through a trap door in its roof directly into place on their foundations.

The train shed at one end of the building, in addition to providing an unloading platform for lime and other materials handling, also serves to house the chlorine vaporizers and such items as the caustic unloading pumps and lime conveyor vacuum pump. The chlorine tank cars are connected on 2 parallel sidings just outside of this train shed with all of the valving of this system located in the shed.

Immediately adjoining one end of the train shed is a 2-section lime storage bin under which is located the lime slaker. At a lower level in this same section there are three storage tanks for 50 per cent caustic. The capacity of the lime bins and the storage tanks is sufficient to operate at full capacity for approximately one week in the event of an interruption in shipments.

The arrangement of the building includes sufficient space for the installation of one additional high density storage tower and there is also sufficient space for an additional bleach tower which could be either high or low density as desired. Corresponding to this, there is sufficient room on the top floor for any additional washers which might be required.

The construction methods on the building itself were quite conventional, but the construction of the bleach towers was a bit different in that they were built from the top down instead of from the bottom up. This possibility arose because the building structure was completed well ahead of the erection of the towers. In consequence it became possible to build the top section of the tower at ground level, hoist it from the overhead building steel to a sufficient height to complete the 2nd course and so on up. This is well illustrated in picture fig. 2. The method was evolved by Dominion Bridge Company and saved a very considerable cost in scaffolding required for welding. All of the towers are steel construction with tile linings and with the shape of the internals at the bottom of the towers formed in concrete.

Materials Handling

In the case of materials handling for the plant, an effort was made to minimize labour requirements and to avoid spillage and consequent cleaning difficulties. During preliminary investigations it was found that we could not assume that lime would be delivered in any particular type of railway car so that our lime handling system had to be adaptable either to box cars or hopper bottom cars. The system installed is a DRACCO vacuum type air conveying system using bag filters to trap dust in the outgoing air and using two different types of inlets. One of these inlets consists of a nozzle much like a vacuum cleaner which can be used in an ordinary box car to remove loosely loaded lime. The second nozzle consists of a pan on skids which can be used under hopper bottom cars or alternatively can be placed in the door of a box car and used to unload bagged material to the storage bin. When unloading lime the freight cars are run inside the building so that operations are carried out at room temperatures and independent of weather conditions.

Adjacent to the same indoor track there is a caustic unloading pump with steam connections and flexible hose for discharging 50% caustic to the storage tanks. This arrangement can be adapted to the discharge of 70 per cent caustic at a later time if found desirable.

Two parallel railway tracks adjacent to the train shed are arranged with pipe stands for connection of two chlorine cars simultaneously. These connecting pipes are brought inside the building and terminate in a manifold arrangement by which either car can be used independently for the chlorination or for bleach liquor manufacture. In one corner of the train shed are located the chlorine control valves and flow measuring rotameters together with three interconnected vaporizers. The vaporizers are arranged so that the centre one of the three can be used as a spare for either of the two outer units; one of which supplies the chlorination tower and the other of which supplies the bleach liquor manufacturing plant. In all cases the vaporizers consist of a vaporizing coil and chamber which is immersed in hot water. The water temperature is controlled by bleeding steam into the outer casing through a Pemberthy mixer. All of this chlorine metering and vaporizing equipment is remotely controlled from the control panels in the bleach liquor plant and on the top floor of the bleach plant. To safeguard against air failure, the chlorine control valves are arranged so that they close on air failure and in addition the control valve supplying the bleach liquor manufacturing plant is connected with a solenoid so that if the lime slurry circulating pump of the bleach liquor plant stops the chlorine valve will automatically close. In addition, because of the distance from the control room to the chlorine cut-off valve and because of the limited personnel normally in the plant, two main spring-loaded shut-off valves have been provided at the chlorine lines immediately following the tank car. These valves will close themselves in the event of an air or power failure or can be closed remotely by the operator on the top floor of the plant if necessary because of any serious leak starting.

FIGURE 2 — Method for assembling steel tower and welding each course at ground level.

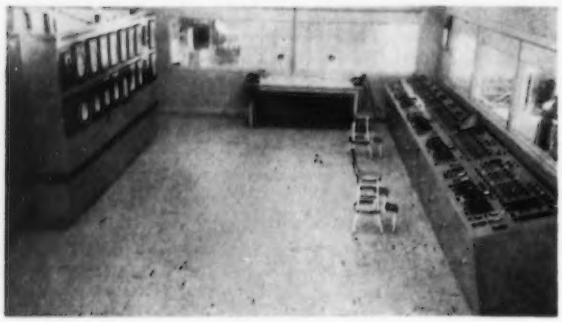


FIGURE 3 — Main control room.

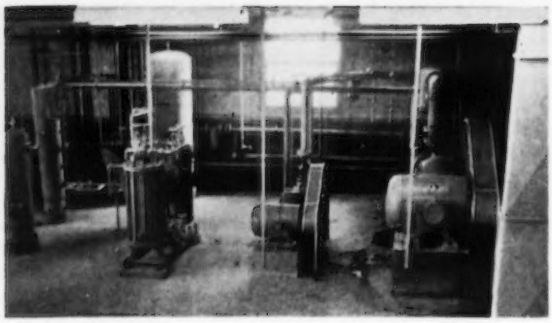


FIGURE 5 — Air compressing and drying systems.

Bleach Liquor Preparation

The bleach liquor preparation system is an IMPCO continuous system similar to that originally installed a few years ago at the Coosa River mill. In this system the lime slurry is fed through an automatic OMEGA feeder and slaker under control of a lime-water proportion. The lime slurry is drawn from the slaker by a variable speed HOYNO pump and the rate of making bleach liquor is governed by this pump. The lime slurry is pumped into a circulating circuit of a mixing tank and the chlorine is added through a rotameter flow controller to an eductor included in this circuit. From the tank in the mixing circuit the bleach liquor flows to a clarifyer and from the clarifyer to a storage tank. The settled lime from the clarifyer is pumped back through a 2-stage lime washing system. The bleach liquor manufacturing system is controlled from a separate panel board located in the bleach liquor preparation room. The operation of the system can be partially checked by the operator on the top floor of the bleach plant by means of a system of signal lights and alarms which will notify him in the event of any unusual condition developing. The bleach liquor is pumped directly from the main storage tank through either of two duplicate pumping units to the hypochlorite stages where the rate of flow is controlled by rotameters operated from the main control room.

Caustic is stored at 50 per cent strength in three storage tanks located beneath the slaker room. These tanks connect into a manifold which supplies either of two pumps. In order to avoid difficulties with low temperatures, the caustic tank room is entirely enclosed and is heated by a unit heater which directs hot air towards the bottom of the tanks. No coils have been found necessary around or under the tanks. In order to get a constant temperature of the caustic there is a small heat exchanger in the discharge of the caustic pumps which maintains a uniform temperature of caustic going to the proportioning rotameters on the top floor. The caustic is diluted down to the required strength through a rotameter proportioning system and the rate of flow through this proportioning system is in turn controlled by a level controller on a dilute caustic head tank which supplies the rotameters of each stage. In consequence there is no dilute caustic storage and no overflow circulation of dilute caustic.

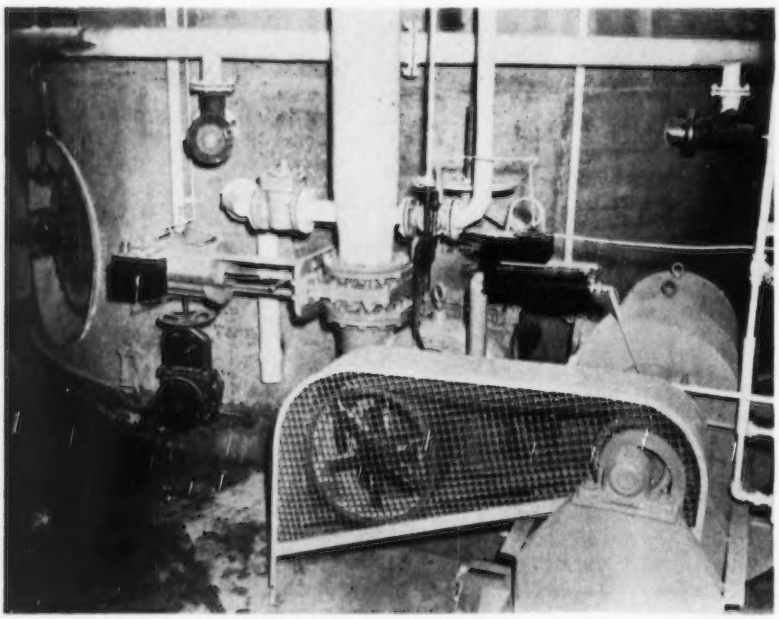


FIGURE 4 — Hydraulic coupling drive on stock pump.

Power

In keeping with the intention of operating the plant from a central control room, practically all of the motors in the plant are controlled by push buttons mounted on the operating consoles. The incoming power for the bleach plant is at 6600 volts through 3-banks of air cooled 1000 K.V.A. transformers. Attached to one end of each transformer enclosure is a motor control assembly which contains the circuit breakers and starters for practically all of the motors in the plant. This same room contains the motor generator sets for the variable speed drives on the washers and also contains a group of small transformers used for various control purposes. This room is isolated by tight closing firedoors from the balance of the plant and it is so arranged that it can be pressurized with fresh air as a means of decreasing the maintenance cost on this equipment due to chlorine in the air.

In order to provide electrical capacity for the additional load, a 6000 k.w. extraction condensing turbo-generator is on order and will be installed during the current winter. This machine will operate at 600 lbs. steam pressure and in parallel with an existing 4000 KW double extraction condensing turbo-generator.

As the mill system, since original construction, has been at 600 volts the expansion of the electrical load beyond 4000 k.w. resulted in extreme current loads on the bus structure. Additionally

it was not posible to buy a 6000 k.w. machine for this low voltage. In consequence of a study made on higher voltage it was decided to purchase the new machine at 6600 volts and a distribution system was developed which will supply the Bleach Plant and part of the existing mill load through 6600 volt to 600 volt power centre transformers. This necessitated installing two more of these 1000 K.V.A. power centre transformers at other points in the mill and transferring existing feeders from the original bus structure to these new centres. A 3000 K.V.A. tie-transformer was installed to tie together the 600 volt and 6600 volt systems at the power plant and it is intended that the 2 turbo-generators will operate in parallel electrically through this tie-transformer. It was found that the existing turbo-generator could be rewound for the higher voltage and it is expected that in gradual stages during future years the mill generating and distributing system will be shifted entirely to 6600 volts.

Controls

Throughout the planning of the bleach plant it was considered that the entire operation should be controlled from a central raised control room on the top floor and that all possible operations should either be automatically or remotely manually controlled. The control consoles are shown to the right in figure 3 and to the left are the various indicating and recording meters, some of which are also controllers, but the majority of which are simply showing the results of the operation of the small controllers mounted on the consoles. An "Executone" intercommunication system was installed. The master station of this system is shown mounted towards the back of the middle of the console assembly. From this station the operator can communicate with any floor in the bleach plant or with such locations as the train shed, the testing laboratory and the electrical sub-station. During start-up this system proved to be invaluable both for regular operation and for quick action in emergency.

Because the control room could not be located so that the operator could see both sides of all of the washers, a system of mirrors has been installed to compensate for this difficulty.

In some portions of the operation where the need for automatic control was questionable, equipment was installed for remote manual control only but so arranged that the automatic feature could be added later if it were found desirable. Ammeters above the push buttons on all important meters indicate the load and in many cases can be used as a measure of rate of flow on pumps. Items which are common to the operation of the whole bleach plant, such as the main water pumps, etc., are grouped together on an auxiliary console at one end of the control station and the balance of the controls are grouped so that each section concerns the entire operation of one stage from delivery of pulp to the tower to its discharge to the following tower. Some interconnecting was done between this control room and such factors in the main mill as machine chest level, position of the machine chest consistency control valve, and for the use of the stock runner, a level indicator was installed in the main mill to show the amount of stock in the Bleach Plant blending chest.

Most of the control in the bleach plant is quite conventional in nature using either cylinder operated guillotine type valves or diaphragm or cylinder operated butterfly valves. However in the case of the main stock pumps from stage to stage it was necessary to design the pumps for sufficient head to completely empty the towers although under normal operating conditions much less head was required due to the height of stock in the tower. As power is a rather valuable commodity in the mill, hydraulic coupling drives with constant speed motors were used on these stock pumps, fig. 4. By this means the pump speed can be remotely controlled from the consoles and the arrangement is found to be quite flexible and yet stable in operation. This arrangement in comparison with a constant speed pump and a throttling valve saves approximately 200 H.P. in the plant. The general arrangement of this constant speed drive is shown on one of the attached photographs.

It is obvious that in a plant using this degree of remote control and automatic control that the air supply becomes of extreme importance. All valves and controllers are arranged so that in the event of air failure there will be the minimum damage or mess. In addition, a completely separate air system was installed in the bleach plant but it was interconnected with the mill system to cover the possibility of compressor outage. Because this air is being used only for control work a carbon ring type of compressor was installed together with intake filter, after cooler and storage tank. This system, the compressor of which is shown on the right of fig. 5 photograph, serves no other purpose than to supply instrument and control air.

A second air system was installed in the bleach plant operating at a somewhat higher pressure and lower capacity for padding the chlorine tank cars. This smaller compressor discharges into a primary air storage tank which in turn discharges through a very small orifice to an air filter and absorption type air drying system. From this air drying system the air passes to a secondary dry air storage tank which is connected to the tank car padding lines. This group of equipment can also be seen in the photograph. In the left background of this same photograph is shown the small air cleaning, washing and heating unit which was installed to provide fresh air for the control room and the electrical substation so that there would be the minimum of damage to the electrical and the control and instrumentation equipment by chlorine vapour.

At the Gaspesia Helm

J. W. Wing, General Manager; J. K. McConomy, Mill Manager; A. D. Robertson, Woods Manager; J. Foster, General Superintendent and C. R. Tellemore, Control Superintendent. The company president is the well known Canadian industrialist E. M. Little.

Wage Increase Averts Ontario Strike

A three percent wage increase has averted a strike of 15,000 workers in Ontario's pulp and paper industry.

Nine unions affiliated with the American Federation of Labor and eleven of the pulp and paper companies reached an agreement on a new contract after five days' negotiation under pressure of a strike threat.

The agreement provides for the increase, with a minimum raise of five cents an hour, retroactive to last May 1, bringing the basic hourly rate to $1.46 and the average to $1.76. The agreement runs until April 30, 1955.

Company and union spokesmen described it as a stabilizing influence in the industry. It is expected to set a pattern for settlement of pulp and paper mill disputes in Quebec and Western Canada.

Former River Raisin Men Start Converting Firm

H. R. McGovern, L. J. Timmins, Victor Flease, and Carl W. Steckmeyer have joined as incorporators of the Ace Paper Products Co., Monroe, Mich. All four were formerly associated with River Raisin Paper Co. Mr. McGovern, who heads the new converting enterprise, was River Raisin director and vice-president of manufacturing at the time of his resignation last September. Mr. Timmins was container plant superintendent for the paper company.

The new converting firm will handle solid fibre and corrugating board specialties, cutting and stitching of solid fibre beverage containers, corrugated board, expendable pallets, and standard sizes of counter and floor displays.

Research as a Career in Today's Pulp and Paper Industry

J. J. Eberl,

Director of Chemical Research, Scott Paper Co.

It is a genuine pleasure to have been invited to speak before this fine group. I am much indebted to Cap Howel for arranging this presentation and consider it a privilege to participate in this lecture series.

Technical graduates such as you, who have been interviewed for positions in our Research Department, frequently have not understood what is meant by industrial research and are unaware of the opportunities of industrial research. Many have indicated that they believed the research man's work to be highly abstract and seldom of any practical value. The applicants, therefore, viewed production as their only highway to success in industry. There is another highway open, however, along which I would like you to travel with me—it is the super-highway of research and offers an attractive career for competent and qualified technical men.

Within recent years research has become a big business with a total annual expenditure in the United States of over three billion dollars of which 60 percent is concentrated in industrial laboratories. Of the remainder, 30 percent is in Government laboratories and 10 percent is in the Universities. Research has penetrated practically every industry, and it is not uncommon to find a company spending as much as 5 percent of its gross sales on research.

This has great significance in that expenditures of this magnitude are indicative of the stimulating opportunities for a career in research. Furthermore, a great challenge exists for technical men to manage research soundly so that the huge sums being invested by industry are put to work usefully. Industrial research has but one principle objective — to bring something new to a business. It must result in a profit. If it fails to do this research becomes a liability and in the meantime the business suffers. There are various factors that contribute toward success in the efforts directed to developing improved products, new products, improved processes, and new processes. Therefore, let us examine these factors which set the stage for successful research and thereby gain a perspective of the industrial research operation.

Requirements for Successful Research

There are four main topics to be discussed as requirements for successful research, namely, research personnel, equipment, selection of problems and environment.

Research Personnel — The most important single factor in my opinion in doing profitable research is the type of personnel. A thorough study of the basic qualities for a successful research man emphasizes a balance of personal characteristics and academic training.

1. Knowledge — As in every field a sound background is highly important. The man must be equipped with good academic training and a thorough understanding of physical principles. He must remember that diplomas are not free tickets to success. The research man must be capable of quickly and continuously adding a variety of knowledge to his initial store of information for his real value depends upon his mental flexibility and his ability to apply his new as well as old knowledge to practical industrial problems.

2. Initiative—A research man possessing initiative has the ability to see what should be done and does it. He will move forward on the project and will do the many things expected of him without being told. He will give more of his time, energy, and knowledge to solve the problem. There is always a problem of getting the job done and usually within a specified time, but you can be sure that the man who has initiative will find a way to accomplish it quickly.

3. Imagination — This is the mental quality that distinguishes the real productive men in many fields. It is particularly important in research for it is the basis of invention. Everyone is born with a certain amount of imagination or inventiveness which will later be blunted or sharpened by training and environment. We must recognize and nurture this mental trait which fact Mr. C. F. Kettering of General Motors must have had in mind when he said. "An inventor is simply a fellow who doesn't take his education too seriously." The principle point here is that imagination can be stymied by knowledge of too many facts which point up reasons why something cannot be done. Scientific training is not detrimental, but has the limitation of functioning as a guide, not the master.

4. Judgment—It is important for all research men to have good judgment for it will keep things in proper balance at all times. Progress is born upon sound conclusions from reliable facts. A man must have the judgment to know how much confidence is warranted by the facts and his conclusions, and the extent to which he must protect them in the face of alternative facts and conclusions and pressures from other groups. He must also educate himself to the commercial point of view, for example. Is the problem worth solving? Is the solution practical commercially? Is the approach the most satisfactory?

5. Honesty—This is the greatest of all virtues and the most profitable. This means being honest with oneself as well as others. It is important that a research worker not mislead himself or engage in wishful thinking. The latter is not deliberate dishonesty, rather it may be that the man is so earnest in his wish for something to be that he unconsciously disregards unfavorable facts. This is really a form of intellectual dishonesty and must be guarded against.

6. Optimism—Research requires courage and perseverance as well as an inherently optimistic point of view. The research man does not always find what has been set forth in the original objective, but he may come upon, and frequently does, something equally good or better. Hence, the alert and open mind of the optimistic man will be helpful. It is interesting that the major portion of creative research has been done by young men.

7. Leadership—A research man usually will have some assistants, so it is important that he possess the leadership quality. This trait becomes of greater importance should he move into administrative assignments in research. The

A lecture delivered at the University of Maine, February 12, 1953, before the class in the Pulp and Paper Technology course.

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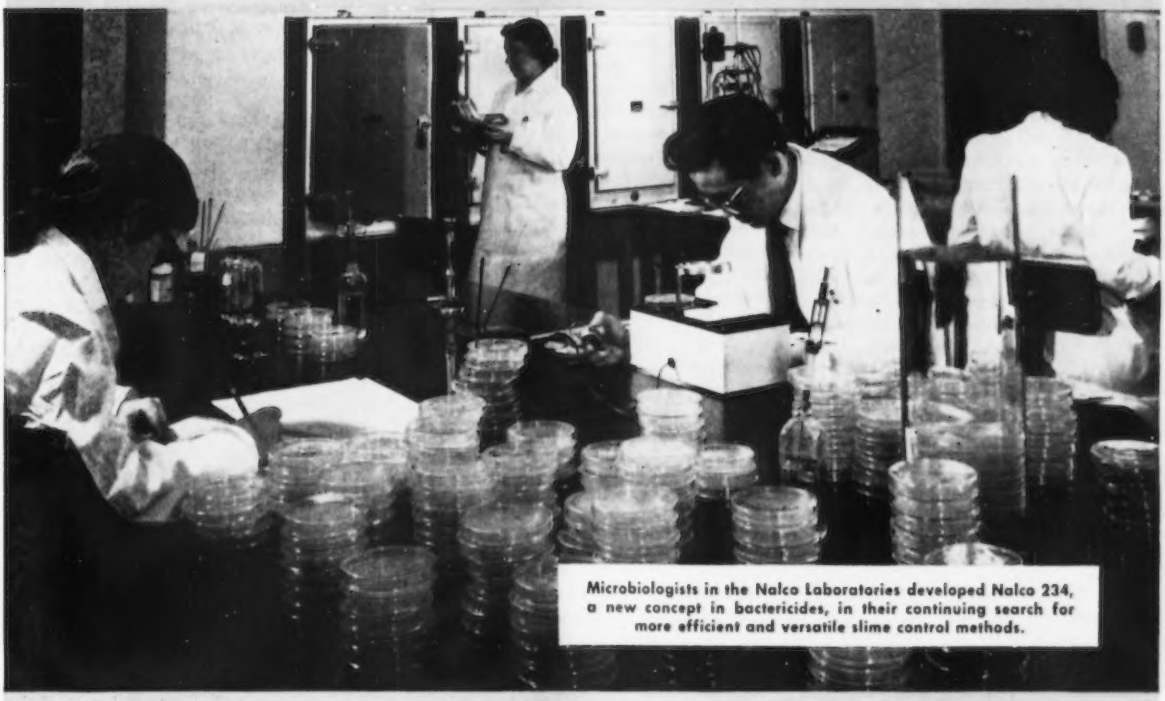

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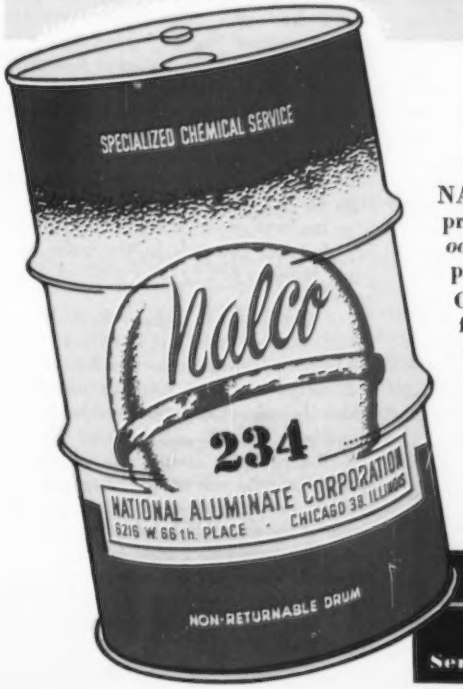

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successful leader will inspire people around him, will have his co-workers impressed with the feeling of dignity in their jobs and the importance of their assignments, and will always suggest but not command. He will also be fair and give opportunity to his co-workers.

8. Cooperativeness—The importance of this trait has increased greatly in recent years as the team approach in industrial research has expanded and become the established pattern. In working with others, a research man must adopt an unselfish attitude. He must work effectively with his associates and the personnel of other departments in the business. There is no longer a place for the lone wolf in industrial research since the experiences of many must be drawn upon, for example, production, engineering, sales, process control and advertising.

In addition to the basic qualities for success in research, there are others worth mentioning.

Ability to take criticism and praise
Resourcefulness and flexibility
Ability to present results of investigations with poise and confidence
Tact

There is an important conclusion to be drawn from this discussion of basic qualities, namely, that the quality requirements which would apply in any walk of life are a decided asset to a research man and coupled with the skillful application of his technical training assure a successful career in research.

Equipment — The industiral research laboratory must be equipped with the necessary tools of research—not only the usual bench-scale facilities but also pilot plant facilities adapted to the particular industry. It is very difficult to generalize for the extent of the facilities depends upon so many obvious factors.[1]

Selection of Problems — I find in interviewing technical graduates that they are not clear on the type of problem undertaken by an industrial research laboratory. Since successful research means bringing something new to the business, the daily operating problems should be handled by the manufacturing department. This keeps research from becoming a fire department. It leaves the plant problems to control and production personnel who are better equipped to solve the difficulties. In instances where the assignable cause for production problems are unknown, the Research Department may participate in discovery of cause and corrective measures. A Research Department will always have some operating problems, but these will by no means dominate its activity.

We now come to the problem of what type of research program will result in satisfying the basic industrial research objective. This type of research must be predominately of an applied nature—

[1] Film entitled *Profile of Tomorrow* was shown at this point.

Eight Requirements for Successful Research—1—Knowledge, 2—Initiative, 3—Imagination, 4—Judgment, 5—Honesty, 6—Optimism, 7—Leadership, 8—Cooperativeness

taking information already available from the many sources (literature, company, University, etc.) adding ingenuity and persistence, and coming up with new and improved results. I realize that fundamental research, the type that has no specific objective and marginal probability of practical value, must be done. This type, however, is primarily within the province of Universities, Research Foundations and Government laboratories. Most companies can afford to apportion only a small percentage of their research funds to fundamental studies with 15 percent being an upper limit. Thus for most industrial research we must be pretty practical men, directing our efforts, with a sharp eye on present and future production and sales operations. There is one further point—we must frequently review the course of the program. This requires patience, of course, to give adequate time for developments but the review must be cold and objective—if necessary plans must be modified or even cancelled or replaced, depending on the prospects of the results.

Environment — Not only is it necessary to have qualified personnel, good facilities, and a judicious choice of problems, but it is necessary to establish the proper research atmosphere. There must be a continued stimulation of the program with an atmosphere of freedom. Overstimulation to the point of setting deadlines and threats causes undue pressure and brings frantic results and lowered productivity. Direct contact with top management is a must so that the research man feels that he is a necessary part of the business, and that the company is solidly behind the research program to which he is contributing. There should be a minimum of management controls so as not to involve the man in red tape when he should be using his time to solve problems. Creative thinking will also be accelerated by eliminating intrigue and petty worries. Good fellowship, team work, and high spirit, are great factors in productivity.

TABLE I

Industry	*% of Sales for Research*
Instrument and Optical	3.34
Electrical Machinery	2.80
Printing	2.55
Transportation Equipment	2.04
Chemical	1.83
Apparel	1.65
Fabricated Metal Products	1.64
Rubber	1.36
Food	1.15
Textiles	0.95
Petroleum	0.74
Paper	0.72
Lumber	0.54
Leather	0.44

Research in the Pulp and Paper Industry

We have discussed research somewhat generally but what about research in the pulp and paper industry? If we examine the results of research, it is easy to find excellent examples of achievement — for example, the high-speed paper machines, machine coating of paper, and wet strength paper. However, many things have been pretty static and we can say in general that the results of research in the pulp and paper industry have been less dramatic and less profuse than in certain other industries such as the chemical and pharmaceutical industries. It is of interest to attempt to analyze why this is so. The most obvious difference is the huge capital investment represented in rather standardized equipment tailored to do a specific job in the paper industry. Drastic modifications in the processes are difficult because of the narrow limits of operation of the specialized machinery. Pulp and paper products being mass produced have also less economic flexibility and many things are immediately ruled impractical because of cost limitations. Since the technical man must have a more pioneering spirit to make real innovations, it is natural that many have placed their emphasis on the testing and evaluation phases of the operation. Herein lies a real challenge to the enterprising young research man.

The pulp and paper industry has not supported research to the extent represented by some other industries. Its relative position can be judged from the facts disclosed by the National Research Council which compared research expenditures of various industries based on percentage of sales.

As can be seen from *Table I*, the paper industry is well down the list and is ripe for intensive research. We, therefore, begin to see a pattern of opportunity of doing research in the pulp and paper industry and can list some of these as follows:

1—New products usually have large-volume outlets and represent real contributions to the business and the public.

2—Many areas of research represent relatively unexplored territory ready to be tapped.

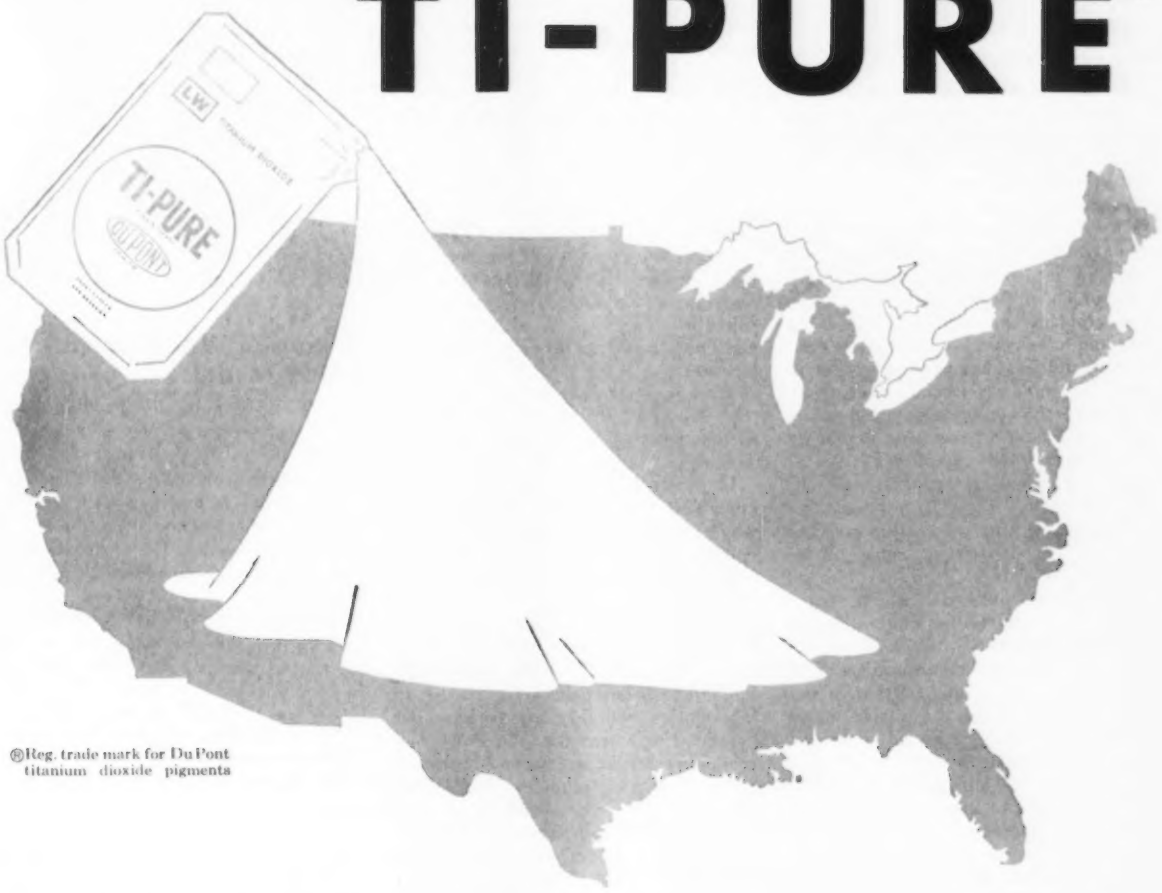
3—Large dollar savings can be accomplished by relatively small changes in the cost of raw materials or processes because of the large scale of operation.

4—The research field is not overcrowded. There are not masses of scientific personnel working along similar lines, and there is more opportunity for individualism.

5—Product improvements have a

from Du Pont...

NATIONAL DISTRIBUTION OF TI-PURE®



®Reg. trade mark for Du Pont titanium dioxide pigments

QUALITY TITANIUM DIOXIDE PIGMENTS FOR PAPER

ON JANUARY 1, 1954 Du Pont will begin exclusive, national distribution of "Ti-Pure" titanium dioxide pigments to the paper industry. A record of over 20 years' successful performance has established "Ti-Pure" LW as one of the finest pigments ever offered to the trade. Whatever your pigment requirements you can count on satisfaction from Du Pont—the *one source* for "Ti-Pure" titanium dioxide pigments.

And remember, when you order "Ti-Pure" you also benefit from Du Pont's experience and technical facilities. Its modern laboratory, for example, is your assurance of getting expert technical aid when you need it—*and* a top quality pigment designed to do the job you have in mind. For more information, just call our nearest district office or write to: E. I. du Pont de Nemours & Co. (Inc.), Pigments Department, Wilmington 98, Delaware.

DU PONT

Better Things for Better Living . . . through Chemistry

PROMPT, NATIONWIDE SERVICE THROUGH THESE DU PONT DISTRICT OFFICES* AND WAREHOUSES:

Atlanta, Ga.
*Detroit, Mich.
Lockland, Ohio
New Orleans, La.
*Portland, Oregon
*Chicago, Ill.
*Houston, Texas
Louisville, Ky.
*New York, N. Y.
St. Louis, Mo.
*Cleveland, Ohio
Indianapolis, Ind.
*Malden, Mass.
*Pasadena, Calif.
*San Francisco, Calif.
Dallas, Texas
Kansas City, Mo.
Minneapolis, Minn.
*Philadelphia, Pa.
Seattle, Wash.

highly stimulating effect on the particular business as the industry is quite competitive.

6—There is a great challenge to the more courageous to pierce the veneer of knowledge and to evolve outstanding advances.

To demonstrate how research is put to work in a paper business and how the research man can make contributions, let us examine a few examples of research accomplishments of the Scott Paper Company.

Wet Strength Scotties

As many of you know the wet strength treatment of paper with synthetic resins is a Scott Paper Company development which was introduced originally in paper towels. Over the years there has been continuous research on this subject, and we have synthesized hundreds of experimental resins. Recently we took up the study of incorporating a wet strength resin in facial tissue. There were many new problems in this application, but you know we were successful for you have seen this dramatic feature put to work by our advertising department. Here is a valuable new consumer quality and it represents a real contribution to the business and the public.

Industrial Wiping Tissue

About a year ago one of the divisions of the sales department came to the research department with the idea of developing an industrial wiping paper which could replace the cloth wiper in the machine shop. We immediately set to work to determine the exact specifications of a paper for this end use. It was soon obvious that no available paper product was satisfactory as a general purpose industrial wiper, and it was necessary to set our sights on an entirely new type of paper product. A research team was set up and it was not long before some fundamental discoveries were made. A pilot plant scale of operation for producing this product was initiated and other departments of the business were called in. Thus in the short span of months, we have a remarkable product in commercial production having the following advantageous features:

1—Excellent oil absorbency
2—Good wiping surface
3—High bulk
4—Stretch in two directions
5—Good pliability

The uniqueness of this paper product is immediately obvious upon examination of the samples. Although it is still somewhat early in the sales history of this product to judge the true merit, it appears that the research team has made a strong bid for the company to capture this huge market.

Groundwood Bleaching

A few years ago our research department thoroughly investigated the subject of groundwood bleaching. Our laboratory and pilot plant studies were initially on peroxide bleaching. Even though a satisfactory peroxide bleaching process had been established at one of our mills—this represented one of the first commercial installations of this groundwood bleaching process—our further studies indicated distinct disadvantages of its broad application in Scott Paper Company. We therefore investigated other methods for bleaching groundwood and found that hydrosulphite had several advantageous features. However, the existing hydrosulphite processes did not give a satisfactory brightness gain and the bleached pulp reverted. Some imaginative research was done on these problems with the result that we now have two commercial installations of our new hydrosulphite bleaching process turning out bleached groundwood for Scott Paper Company. Here is an example of a new process development which has resulted in reduced costs and better paper machine operation for our particular business.

These examples show how an industrial research program can be tailored to the needs of the business and how dynamic is the job of research.

In conclusion, I should like to read quotations from two company presidents which are a real stimulation to the potential research man as they reflect the thinking and attitude toward research of current top management.

Crawford H. Greenewalt, president of the du Pont company said: "But back of our plants, back of the people who build and operate them are our research laboratories, and they are perhaps our greatest single resource. For every new product, every improvement in process, every advance in technology had its beginning somewhere, somehow, in the mind of a research worker in his laboratory. Research is the essential vitamin without which the body of industry loses its vitality and dynamic character."

T. B. McCabe, president of Scott Paper Company, said: "Some of the research explorations in paper tax my imagination. Every day scientists are endowing paper with new properties. They have made it absorb water thirstily or reject it; it can display tenacious strength or be linen-soft; it will explode in flames or be fire proof; and it can show off by exhibiting the properties of a host of other materials. An industry and a nation dedicated to research will never relent. Research scientists of our own and succeeding generations will provide us with new methods and products that will stimulate the production of wealth. Theirs is the priceless gift of a great tomorrow."

I believe that you can sense the power of research in a business and the opportunities it affords as a career for you.

Nicholson Will Receive TAPPI Medal

G. W. E. Nicholson, Union Bag & Paper Corp. executive vice-president in charge of manufacturing, has been chosen to receive the 1953 TAPPI Medal.

The medal is awarded each year to the man "whose achievements have definitely contributed to the technical progress of the pulp, paper and paperboard industry."

Mr. Nicholson will receive the award at a formal presentation at the annual meeting of the Pulp and Paper Industry in New York next February. The medal has a long and distinguished history of being awarded each year to the industry's most outstanding men.

Mr. Nicholson served as resident manager of Union Bag's Savannah plant from 1941 to 1945.

In 1945, he was named vice-president in charge of manufacture at all Union Bag plants with headquarters in New York, and has since been elevated to the rank of executive vice-president.

The new recipient of the TAPPI Medal also holds numerous other honors in the pulp and paper field. In 1949, he was knighted by King Gustaf of Sweden for his contribution to industrial cooperation between that country and the United States.

He has twice gone abroad in the service of his industry: in 1946, when he was one of 25 American industrialists selected to visit Scandinavian countries, and again in 1950, when the State Department invited him to visit Austria under ECA to obtain information on the requirements of the pulp and paper industry there.

He has been a member of TAPPI for a number of years, and served as president of the organization in 1946.

stainless steel bar users:

Get all three at CRUCIBLE

faster *delivery* —

Our unique mill scheduling operation is geared to handle any size order for stainless steel bars — whether it be for pounds or carload lots. And we operate our own national chain of warehouses to enable us to make immediate shipments to you directly from a local source over which we maintain complete control.

maximum *machinability* —

Recognizing the importance of good machinability, our mill metallurgists maintain close control over all manufacturing operations to insure that the machinability characteristics of each stainless bar produced is of the maximum obtainable.

complete *range* —

All our warehouses now have complete stocks of stainless and heat-resistant bars . . . in all sizes, all grades and all finishes. No matter what your requirements are in the way of stainless and heat-resistant bars we can take care of them.

Next time you need stainless steel bars, be sure you call your nearest Crucible warehouse.

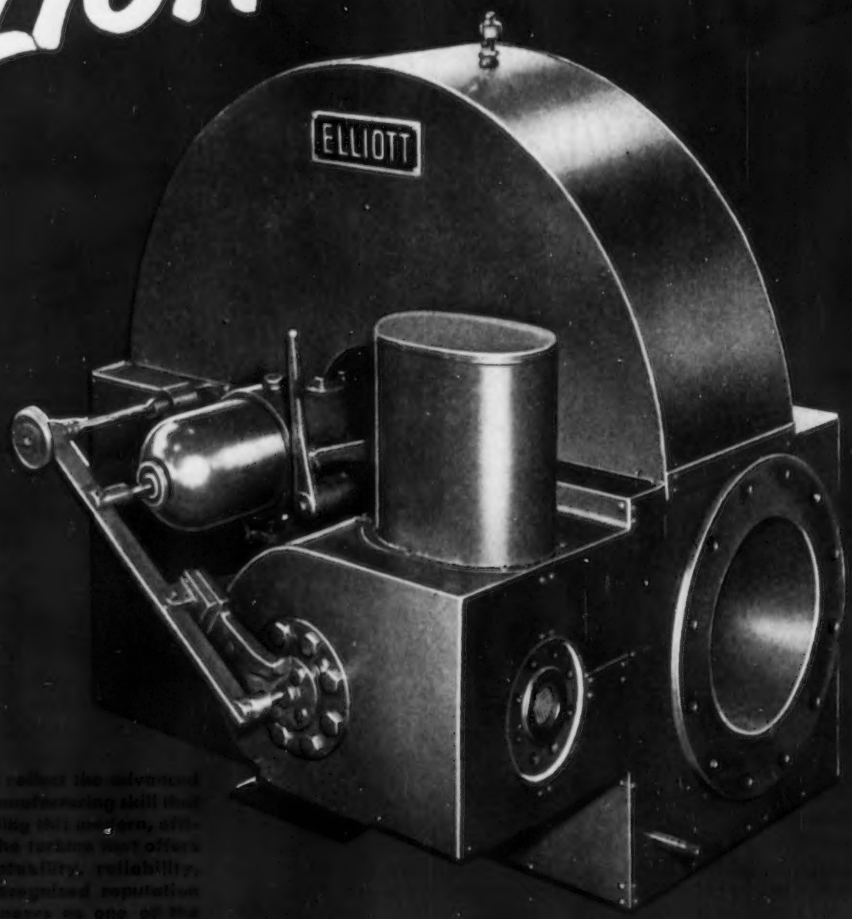
CRUCIBLE first name in special purpose steels

53 years of Fine steelmaking **STAINLESS STEEL BARS**

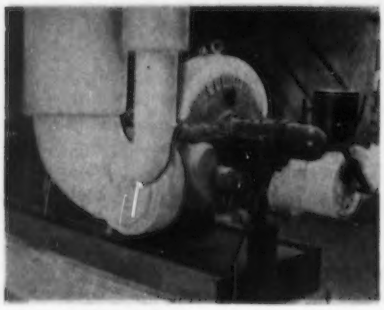
CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

REX HIGH SPEED • TOOL • REZISTAL STAINLESS • MAX-EL • ALLOY • SPECIAL PURPOSE STEELS

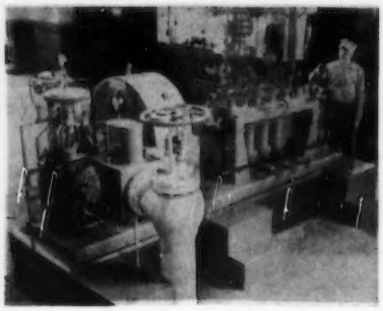
ELLIOTT TURBINES



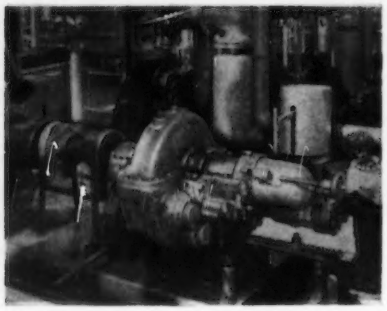
Classic simplicity here reflects the advanced engineering and manufacturing skill that has gone into building this modern, efficient turbine. It's the turbine that offers everything—adaptability, reliability, economy and a recognized reputation among plant engineers as one of the finest, most dependable turbines available anywhere.



Elliott 360-hp, 3550-rpm turbine driving a boiler-feed pump in a paper mill, exhaust steam being used in process.



Elliott 500-hp turbine driving a hydraulic system pump in a steel mill. Turbine maintains constant pump discharge pressure.



One of a group of Elliott turbines driving lean oil pumps in a cycling plant, where reliability is especially important.

A standard turbine—yet "tailor-made" to your requirements

Elliott Turbines can be adapted to practically any operating condition or service

That's because these powerful, compact turbines are designed to give you the advantages of custom-built adaptability at savings achieved through mass production of standardized parts. A wide variety of permissible modifications are possible. For instance... five sizes of YR turbines cover the entire range of capacities up to 2000 hp, speeds from 800 to 7000 rpm and back pressures from 4 in. Hg to 250 psig. Standard designs of rotor, governor, bearings, bearing cases, steam chest, governor valves and governor linkage are used throughout. In the case of higher pressures and temperatures up to 850 psig and 900 F, materials for steam parts may be changed from cast iron to steel.

Here are a few of the design highlights that are included in Elliott turbines:

Air-wall labyrinth seals to protect bearings from contamination without rubbing contact.

Centerline support to provide constant alignment under any operating condition.

Stainless steel spray coating under packing glands to eliminate corrosion of the shaft.

Choice of many governors to meet specific control requirements.

Liner type bearings to eliminate the need for scraping and fitting.

Packing glands removable without raising turbine upper half casing to simplify inspection and maintenance operations.

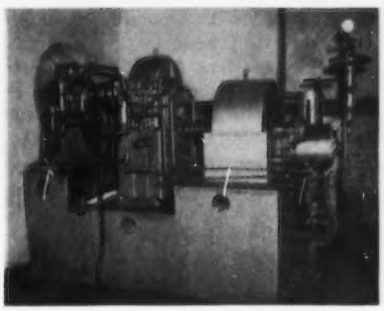
Stainless steel buckets and shroud to assure maximum life and continued high efficiency.

These and many other features are *standard* in Elliott turbines. They are the result of years of practical experience in the application of turbines to hundreds of different types of plant equipment and to many different types of operating and steam requirements.

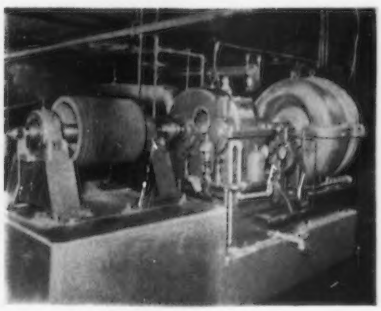
Full details on Elliott Mechanical Drive Turbines can be obtained from your local Elliott representative or by writing Elliott Company, Jeannette, Pa., for a descriptive bulletin.

ELLIOTT Company
STEAM TURBINE DEPARTMENT

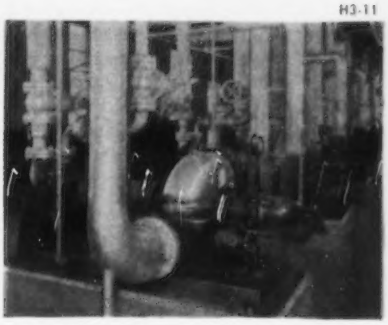
H3-11



This Elliott 202-hp turbine drives an induced-draft fan through a separate reduction gear, in a midwestern generating station.



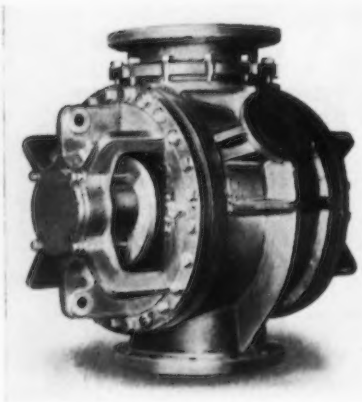
An Elliott 250-hp geared multi-stage turbine driving a paper machine. Governor gives close regulation over a wide speed range.



This line of oil pumps is driven by Elliott turbines. This is one of many refinery applications for Elliott turbines.

NEW EQUIPMENT

AND SUPPLIES



Rotary Feeders Used With Asplund Units

The Rotary Feeder, now available in 15-inch and 21-inch diameters, has lately been applied in continuous operation for feeding raw chips or pre-soaked chips into extended preheaters used in combination with Asplund Defibrators. The units are made by American Defibrator, Inc., Chrysler Bldg., New York, N. Y., and may be applied to a variety of feeding applications for introducing wood chips or other materials into high pressure cooking or pre-heating vessels.

In one Asplund installation, the cooking takes place in different temperature zones. The rotary feeders are used between the various zones, making it possible to produce a bleachable semi-chemical pulp, it is said.

The feeder consists of a housing and a rotor with two pockets. The rotor revolves in the liner mounted in the housing which is equipped with packing boxes to prevent escape of steam and is supported by antifriction bearings. The 21-inch feeder has a capacity of about one cubic foot of material per revolution and will handle from 70 to 100 tons of wood chips, bone dry basis, per 24 hours, at a speed of only 8 to 12 r.p.m. It is designed to operate at steam pressures up to 180 p.s.i. The power consumption is said to be 2 to 4 h.p.

Double Masted Fork Trucks

The Double Telescopic Mast has been introduced by Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio. The unit is designed to outfit the company's line of lift trucks for both entering and loading or unloading boxcars and highway trailers as well as stacking loads in high ceilinged areas.

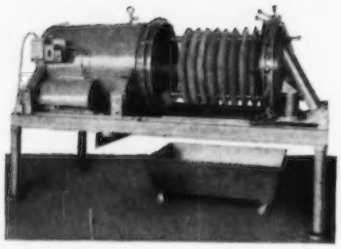
The telescopic mast consists of two short masts: the first mounted in conventional position, the second mounted in place of the carriage. The carriage and forks are mounted on the second mast. Both masts may be operated independently or simultaneously. In low-ceilinged areas, the forks are raised or lowered with both masts down. For high stacking, the second mast is raised by the first, thereby adding the lift height of the one to that of the other.

The new mast comes in six different sizes or "preferred mast combinations," varying in lifting height of each mast and, of course, in total height of lift. One of the combinations is less than six feet high with masts lowered, yet has a lift height of 14 feet. Another mast combination provides a maximum lift of 18 feet. The units are available for Towmotor Models 390, 420, 460 and 480-P.

High-Temperature Revolving Joint

Rotherm Engineering Co., Inc., 7280 West Devon Ave., Chicago 31, Ill., has developed a new high-temperature revolving joint that can be bracketed and mounted with solid piping. This joint is manufactured with stationary or rotating syphons with left or right hand threads and is said to be capable of handling temperatures up to 550 degrees F. at 300 pounds steam pressure. The joints are made in sizes ½ inch to 5 inches inclusive.

The joint can also be supplied as self-contained, requiring no mounting bracket. Both types have low turning torque against a Teflon stationary seal, spring seated, the face of which aligns itself to the roll bearing. The joints can also handle air and hydraulic pressures.



Plant Water And White Water Filter

Recommended for filtering plant process water and for filtering and reclaiming white water, the Model MCR Retractable Tank Filter is being produced by Sparkler Mfg. Co., Mundelein, Ill. The filter is available in capacities of 100 square feet to 2000 square feet of filtering surface.

The manufacturer states that the unit can be opened with all plates exposed in 60 seconds. Filter can be cleaned by jet spray wash off, backwashing or a combination of both, or by hand. To open, release one lever, and the tank is retracted with the flip of a switch, without disconnecting pipe connections. It is further stated that one man can open the filter, clean a 2000 lb. cake and have the filter in operation again in less than 30 minutes.

Filter plates can be spaced any distance apart to accommodate cake of varying thickness. The circular double surface screen plates are reinforced. Filter tanks can be supplied in mild steel, stainless steel or other metals to meet chemical requirements. Tanks can be rubber lined or plastic lined for corrosion resistance.

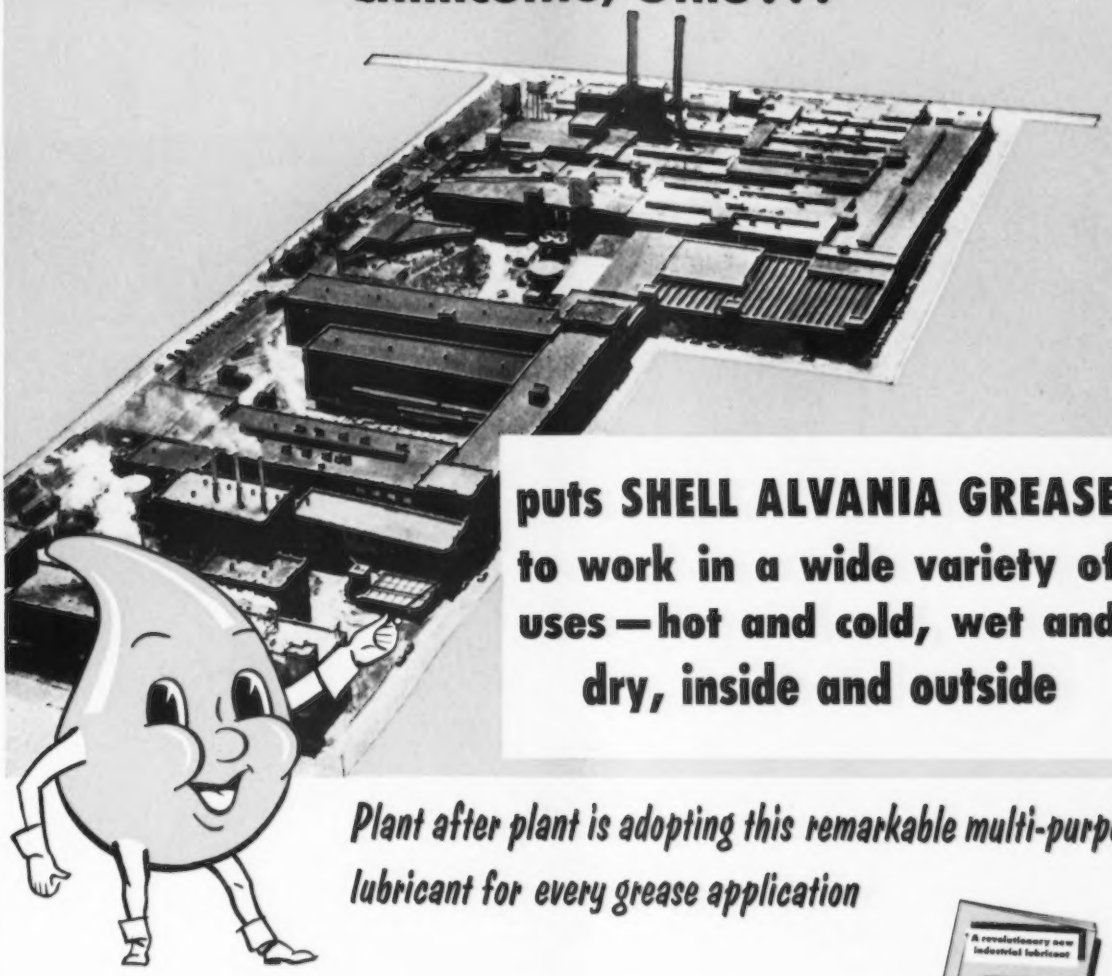
Resin Forming Agent For Treating Paper

A new experimental product known as Biuret ($H_2NCONHCONH_2$) is now available in test quantities from Product Development Dept., Nitrogen Div., Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y. A number of patents have described resinous products obtained by reacting biuret with various agents. These products are claimed to be useful as treating agents for paper and other materials.

The product is similar to Urea and can be used where Urea or Melamine are now used. It is not intended as a replacement for these products but is a new material which will supplement them in uses where its properties prove valuable, it is said.

Detailed data on the product are available in Bulletin PD-B-1, obtainable from the manufacturer.

THE MEAD CORPORATION,
Chillicothe, Ohio . . .



puts SHELL ALVANIA GREASE to work in a wide variety of uses—hot and cold, wet and dry, inside and outside

Plant after plant is adopting this remarkable multi-purpose lubricant for every grease application

LOOK AT THESE ADVANTAGES:

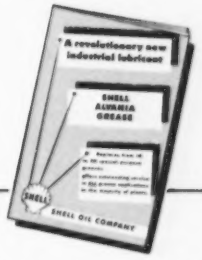
1. Shell Alvania Grease flows *freely* in cold temperatures, yet will not run out of bearings under excessive heat.

2. Ideal for wet, humid applications . . . it has high resistance to water emulsification.

3. Shell Alvania Grease has extremely high oxidation stability in service or storage.

4. You'll find that Shell Alvania Grease extends time between greasings . . . a substantial saving in labor and grease.

5. Simple inventory . . . just the one grease to stock and apply.

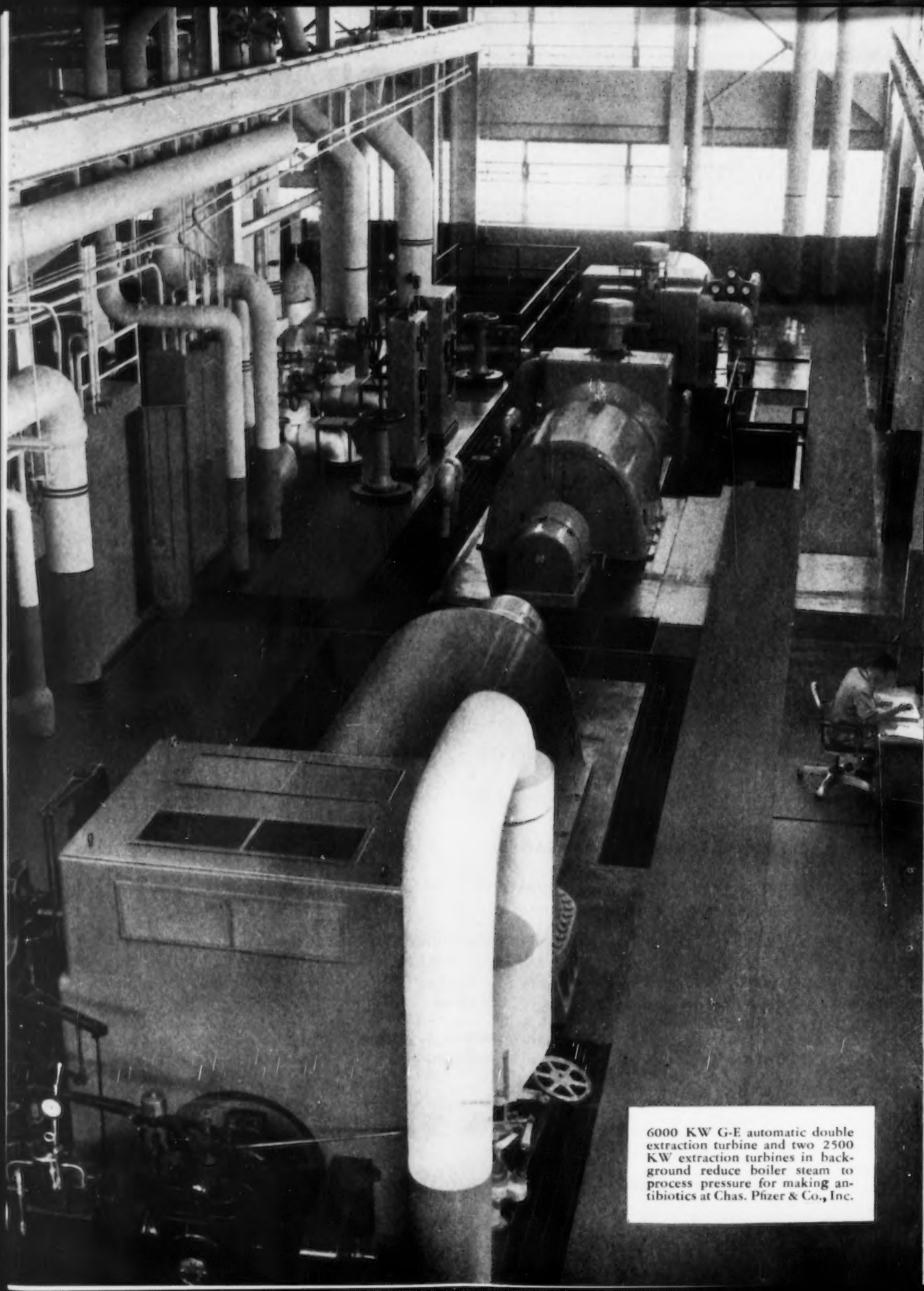


There is decided economy in handling just one grease *instead* of many different types. Write for the new booklet on Shell Alvania Grease . . . to Industrial Lubricants, Shell Oil Company, 50 West 50th Street, New York 20, N. Y.— or 100 Bush Street, San Francisco 6, Calif.

SHELL ALVANIA GREASE

SHELL

The True Multi-Purpose Industrial Grease



6000 KW G-E automatic double extraction turbine and two 2500 KW extraction turbines in background reduce boiler steam to process pressure for making antibiotics at Chas. Pfizer & Co., Inc.

G-E Extraction Turbine at Chas. Pfizer & Co., Inc. Increases Plant Thermal Efficiency Over 15%

Extraction pressures held constant, even under varying loads; turbines reduce boiler steam to process pressures for use in making antibiotics

Plant thermal efficiency was increased over 15% when Chas. Pfizer & Co., Inc., producer of antibiotics, recently installed the third General Electric automatic extraction turbine-generator at its Groton, Connecticut, plant. A 6000 KW extraction unit was installed to take fullest advantage of available high-pressure steam, and to obtain additional economical by-product power.

PRESSURE HELD CONSTANT

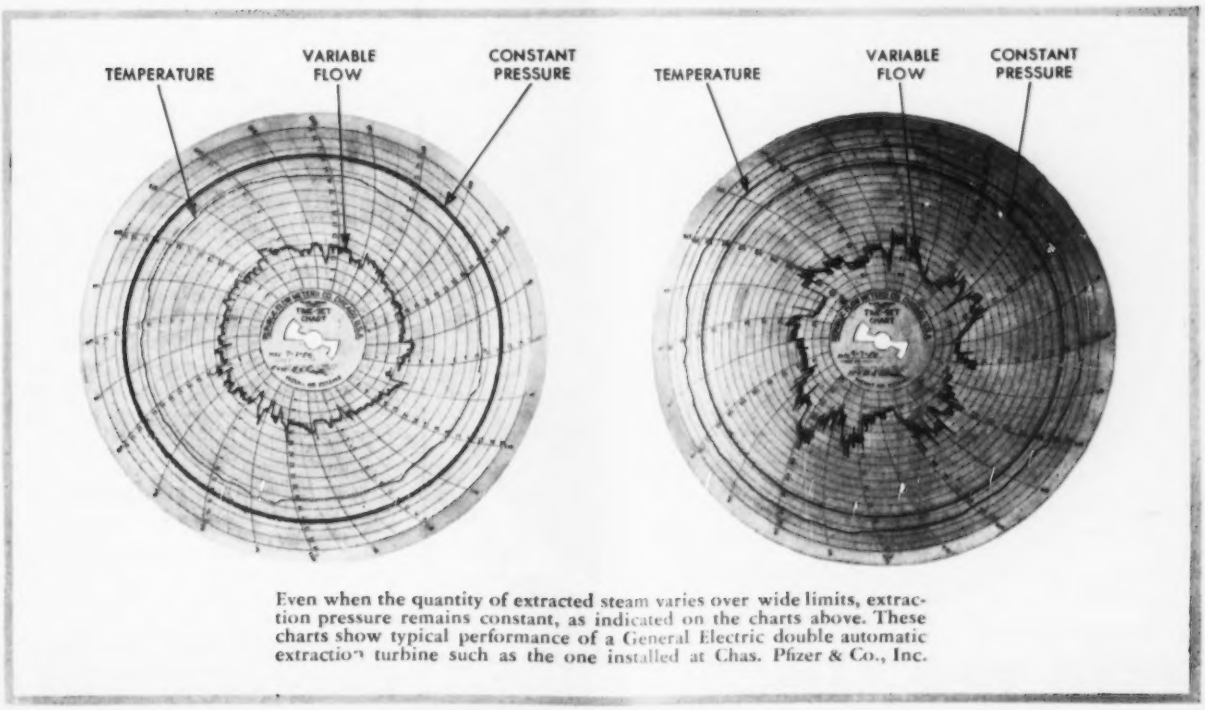
The double automatic extraction turbine takes steam at 725 F, 600 psig, and extracts at 135 and at 50 psig for plant process uses in the making of terramycin and other antibiotics. Chas. Pfizer & Co., Inc. reports that accurate turbine governing holds electrical frequency constant, and keeps extraction pressures precise, even when the quantity of extracted steam varies. (See charts below.)

If your plant uses process steam, why not take advantage of G.E.'s experienced turbine engineering resources. G-E engineers will study and recommend ways for you to best utilize steam supply. Get more for your turbine dollar with G-E turbine-generators. General Electric Company, Schenectady 5, New York. 256-8

1878 75 1953 YEARS OF ELECTRICAL PROGRESS

You can put your confidence in—

GENERAL ELECTRIC



Even when the quantity of extracted steam varies over wide limits, extraction pressure remains constant, as indicated on the charts above. These charts show typical performance of a General Electric double automatic extraction turbine such as the one installed at Chas. Pfizer & Co., Inc.

NEWS OF ASSOCIATIONS

Superintendents Meeting Dates

DATE	DIVISION	PLACE
December 4-5	Pacific Coast	New Washington Hotel, Seattle, Washington
Dec. 17	Pacific Coast	Hotel Harris, Kalamazoo, Mich.
Jan. 15	Connecticut Valley	Roger Smith Hotel Holyoke, Mass.
Jan. 26	Miami Valley Div.	American Legion Hall, Middletown, Ohio
June 21-23	National Meeting	Sheraton-Mount Royal Hotel Montreal, Que.

TAPPI Meeting Dates

DATE	SECTION	PLACE
Dec. 2	Western N. Y. Empire State	Prospect House, Niagara Falls, N. Y.
Dec. 3	Kalamazoo Valley	Hotel Harris, Kalamazoo, Mich.
Dec. 4	Delaware Valley	Riegelridge, Riegel Paper Corp. Riegelsville, N. J.
Dec. 4	New England	Roger Smith Hotel Holyoke, Mass.
Dec. 4	Southeastern	Fort Sumter Hotel, Charleston, S. C.
Dec. 8	Ohio	American Legion Hall, Middletown, Ohio
Dec. 8	Metropolitan District Empire State Section	Fraunces Tavern, Broad and Pearl Sts., New York
Dec. 10	Empire State Northern District	La Martina's Restaurant, Watertown, N. Y.
Dec. 17	Eastern District Empire State	Glens Falls, N. Y.
Dec. 21	Chicago	29 So. La Salle St., Chicago, Ill.
Jan. 19	Pacific	Tacoma, Wash.

N. E. TAPPI To Meet Dec. 4

The New England Section of TAPPI will meet on December 4 at the Hotel Roger Smith, Holyoke, Mass. at 1:00 P.M., there will be a mill visit to Chemical Paper Mfg. Co., Holyoke, Mass.

The following program will be held in the main ballroom of the Roger Smith Hotel.

4:00 P.M.—Statistical Program. "Analysis Of Variance In Dealing With Mill Data", by Dr. Geoffrey Beall, Professor of Statistics, University of Connecticut, Storrs, Conn.

5:00 P.M.—Stream Improvement. "Waste Disposal Problems Of The Small Mill", Dr. Harry Gehm, Technical Advisor, National Council of Stream Improvement.

6:00 P.M.—Social Hour.

7:00 P.M.—Dinner. After dinner, the following movie will be shown: "Deep Water", courtesy of the Layne-New York Co., Inc.

Flexography Panel Stirs Metro TAPPI Interest

Over 100 members and guests turned up at the November 10th meeting of the Metropolitan District District of Empire State Section of TAPPI, to hear a panel of experts discuss the latest advances in flexographic printing. District Chairman Ralph Kumler presided, and the panel was introduced by Program Chairman Lew Ayres.

The panelists were Milton Zukerman, Kidder Press Co., wo described his company's development of presses for flexographic printing; John LeCraw, Mosstype Corp., who outlined his company's progress with automatic controls in the production of rubber plates for the flexographic process. Synthetic compounds have been developed which give improved life and resistance to alcohol. He stated that some plates have held up well through 15 million impressions. Third panelist, Col. Joseph Viner, International Printing Ink, spoke with vigor on his company's special flexographic inks which are fast-drying water or water-emulsion inks with synthetic resin bases.

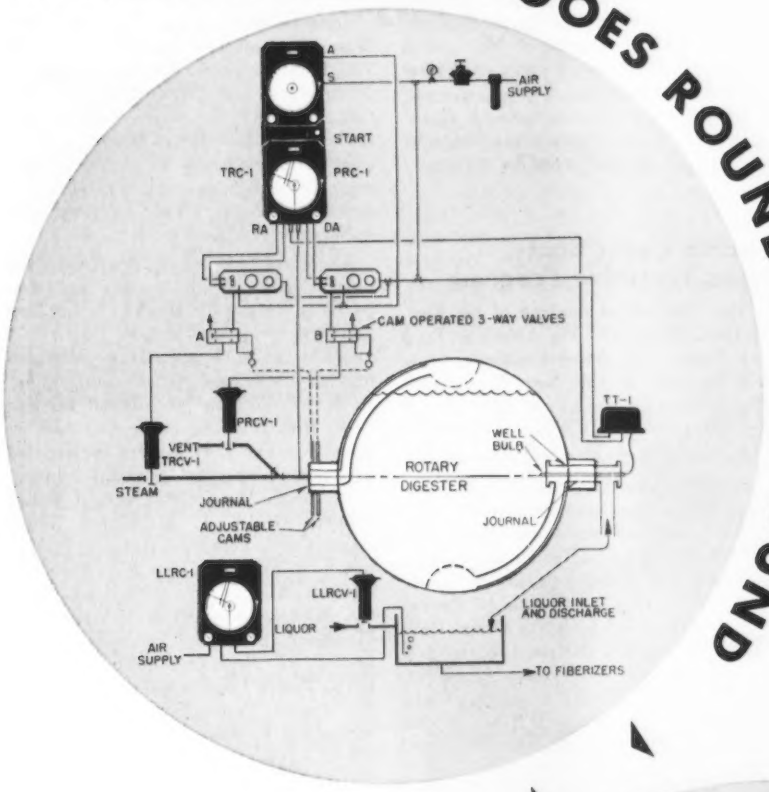
It was announced that the December meeting will be held on Tuesday the eighth at Fraunces Tavern and will feature a discussion of Alum Application.

International Instrument Congress Planned

The first International Instrument Congress and Exposition is scheduled for September 13-24, 1954, at Philadelphia's Commercial Museum and Auditorium.

The Instrument Society of America is sponsoring the Congress and Exposition, in cooperation with the following so-

THE HARDWOOD GOES ROUND AND ROUND



It's a lot harder to make fine paper out of hardwood than out of softwood. But when hardwood was all they could economically get, West Virginia Pulp and Paper Company solved the problem at their Mechanicville, N. Y. plant by employing real processing ingenuity and Taylor controls.

In their use of rotary digesters they solved three problems in one: To measure and control the temperature and pressure inside a rotating 16-foot sphere. To introduce steam into the digester at the right time. And to let out the accumulated air and gases so the steam could get in. Taylor FULSCOPE* Time Schedule Controllers do the job.

RESULT: West Virginia keeps its reputation for quality. And local farmers are making $1,000,000 a year extra cash from their woodlots.

For the newest developments in papermaking control (and some old standbys you may have missed) send for Taylor Bulletins on the Paper Industry. Or ask your Taylor Field Engineer. Taylor Instrument Companies, Rochester, N. Y. and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.*

*Reg. U.S. Pat. Off.

AND THE INFORMATION COMES OUT HERE

TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

easy does it...
with
DOW CORNING
ANTIFOAM A

Optimum concentrations of Dow Corning Antifoam A against a wide variety of foamers are so small they are measured in parts per million. For instance:

4 p.p.m. (0.0004%) defoams cottonseed oil
1 p.p.m. (0.0001%) defoams fermenting wheat
1 p.p.m. (0.0001%) defoams neoprene latex
1 p.p.m. (0.0001%) defoams paper sizing
.02 p.p.m (0.000002%) defoams vat dies

Used throughout the processing industry, Dow Corning Antifoam A cuts processing time; increases productive capacity; eliminates waste and hazardous overflow.

Odorless, tasteless and nontoxic, Antifoam A is safe, swift and by far the most economical defoamer you can buy.

DOW CORNING ANTIFOAM AF EMULSION.

Originally developed for use in the food industry, this new water-dispersible silicone emulsion is equally versatile, equally effective in industrial processing of aqueous foamers.

For further information on these materials, we invite you to . . .

see for yourself!

Mail coupon today for FREE SAMPLE

DOW CORNING SILICONES

Dow Corning Corporation
Midland, Michigan
Dept. DT-11

Please send me data and a free sample of—
☐ Dow Corning Antifoam A or
☐ Dow Corning Antifoam AF Emulsion

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

cieties: American Institute of Electrical Engineers, American Institute of Physics, American Microscopical Society, American Institute of Chemical Engineers, American Society of Mechanical Engineers, American Society of Photogrammetry, Institute of Radio Engineers, Society for Experimental Stress Analysis, Verein Deutsche Ingenieure, Deutsche Gesellschaft fuer Chemisches Apparatewesen.

Pacific Coast Supts. Issue Tentative Program

The 1953 annual meeting of the Pacific Coast Division of the American Pulp and Paper Mill Superintendents Assn. will be held at the New Washington Hotel, Seattle, Wash. on December 4 and 5.

Following is the tentative program:

December 4—9:00 a.m.—Registration starts. *Morning program*—such mill visits as you may care to arrange.

2:00 to 4:30 p.m.—Technical Program—"Pulp and Paper Quality Requirements for Present-Day Standards" Papers—1. *Newsprint*—Thomas H. Grant, Publishers' Paper Co., Oregon City, Ore. 2. *Bond Papers*—C. H. Obert, Rayonier, Inc., Hoquiam, Wash. 3. *Glassine and Greaseproof Papers*—J. B. Beck, Oregon Pulp and Paper Co., Salem, Ore.

December 5 — 8:00 a.m. — Men's "Wake-'em-Up" Breakfast—International Brotherhood of Migratory Peddlers, Waiting Room No. 2.

9:00 to 11:00 a.m.—Technical Program—"Pulp and Paper Quality Requirements for Present-Day Standards." Papers—1. *Coated Papers*—Crown Zellerbach Corp., West Linn, Ore. 2. *Writing Papers*—Frank R. Hamilton, Everett Pulp & Paper Co., Everett, Wash. 3. *Bag Papers*—St. Regis Paper Co., Tocoma, Wash.

11:30 a.m.—Pacific Coast Division Business Meeting—Election of Officers.

12 Noon—Men's Luncheon. Speaker—M. J. Lamb, Manager, St. Regis Paper Co., Tacoma, Wash.

2:00 to 4:30 p.m.—Technical Program—"Pulp, Board and Paper Quality Requirements for Present-Day Standards." Papers—1. *Cylinder Board*—Rex West, Longview Fibre Co., Longview, Wash. 2. *Fourdrinier Board*—Weyerhaeuser Timber Co., Longview, Wash. 3. *Soft Tissue*—Westminster Paper Co., Ltd., New Westminster, B. C.

6:00 p.m.—Reception honoring National President and Pacific Coast Officers and their wives.

7:00 p.m.—Banquet.

9:00 p.m.—Dancing—dress optional.

Sixth Bolton Award Bound Book Released

John W. Bolton & Sons, Inc., Lawrence, Mass., has released bound volumes of *The Bolton Award 1953*, containing the 13 prize essays on "The Obligations of a Company to Its Employees." This is the sixth collection of prize essays to be issued as the result of an annual writing competition sponsored by the Bolton Co. under the auspices of the American Pulp & Paper Mill Superintendents Assn.

The essays, all outstanding treatments of the assigned subject, are those impartially judged the best in the national and divisional competitions. APPMSA members whose prize work is presented in the volume are: E. P. Ingalls, Jr., S. D. Warren Co., 1st national winner; C. F. Hill, Jr., Sorg Paper Co., 2nd national winner; J. H. Groves, Union Bag & Paper Corp., 3rd national winner; L. E. Beck, Mead Corp., Miami Valley winner; Dr. A. L. M. Bixler, Riegel Paper Corp., Penjerdel winner; W. Gallay, E. B. Eddy Co., New York-Canadian winner; A. T. Luey, Sutherland Paper Co., Michigan winner; J. A. McPherson, Mosinee Paper Mills, Northwestern winner; F. H. Milligan, Crown Zellerbach Corp., Pacific Coast winner; W. E. Ryan, Jr., Ecusta Paper Corp., Southeastern winner; J. E. Wilbur, S. D. Warren Co., Northeastern winner; B. P. Wood, Strathmore Paper Co., Connecticut Valley winner; R. H. Worrell, Southland Paper Mills, Southern winner.

Florida U. Conference To Become Annual Affair

The second annual pulp and paper conference, sponsored by the Pulp and Paper Laboratory, Chemical Engineering Dept., University of Florida, was held at Gainesville, Fla., on November 4 to 6. One of the principal speakers was Raymond S. Hatch, director of research for Hudson Pulp & Paper Co., Palatka, Fla., who discussed the Kraft process from an experience dating back to 1912, when he started as a paper mill chemist.

Objectives of the conference, to be an annual affair, are: 1. to develop broader technical knowledge in foremen who have already shown qualities of leadership; 2. to assist qualified men in acquiring the technical knowledge they need to instruct the men reporting to them; 3. to increase the learning pace of recently employed technical men who do not have specific pulp and paper experience; 4. to provide a refresher course for mill administrators and operators.

The conference was attended by men from Florida and other southeastern states.

NEWS OF SUPPLIERS

• LINK-BELT CO. has appointed Harvey V. Eastling as general manager of the company's Pacific Division, with headquarters in San Francisco. He succeeds Ralph M. Hoffman, who is retiring after 40 years of service.

Mr. Eastling, who has been assistant general manager of the Link-Belt Pacific Division since June 1, started his Link-Belt career in 1925 as chief draftsman at the San Francisco plant. He later became chief engineer of Link-Belt Co. Pacific Division and subsequently manager of engineering sales in Seattle. In 1940 he was appointed general sales manager of the Pacific Division.

Mr. Hoffman joined the predecessor of Link-Belt Co. Pacific Division, Meese & Gottfried Co., in 1913. He became president of Link-Belt Co. Pacific Division in 1943, and in 1948 was elected a vice-president of Link-Belt Co. He is retiring in accordance with the Link-Belt retirement plan.

• HOOKER ELECTROCHEMICAL CO. will start shipping liquid caustic soda and liquid chlorine from its new plant at Montague, Mich. starting January 1, 1954.

No solid or flake caustic will be manufactured. Chlorine will be available in single unit tank cars of 30 or 55 ton. No provision is being made for cylinders or ton containers.

• BINNEY & SMITH CO., manufacturer of blacks, colors and chemicals, will move its New York headquarters to 380 Madison Avenue on November 16. Telephone and teletype numbers remain unchanged.

• REICHOLD CHEMICALS, INC., has moved its executive offices to 525 N. Broadway, White Plains, N. Y. The New York sales offices remain at 630 Fifth Avenue, New York, N. Y.

• M. H. ELLIS CO., Memphis, Tenn. signed a contract with the Insul-Mastic Corp. of America to sell and apply Insul-Mastic coatings in the Memphis area. These coatings are the heavy, pressure applied, asphaltic type and will be used by Ellis for corrosion preventive applications to industrial equipment. The company will also contract for the waterproofing of buildings, using the same coating with the exception that a decorative finish of colored stone granules will also be employed.

Correction

In our item of November 6, page 40, reporting the election of Dr. F. Otto Haas, executive vice-president of Rohm & Haas Co., the photograph captioned F. Otto Haas was not Mr. Haas but was Frank Wolcott of Wyandotte Chemicals Corp., who was recently promoted to vice-president in charge of manufacturing for Wyandotte. Our apologies to both gentlemen.

• **BITUSIZE B** is a fluid, microscopically dispersed asphaltic emulsion employing a specially refined asphalt. That's why Bitusize B *internal sizing* gives maximum waterproofing plus greater dry and wet strength, without production penalties.

No special equipment is needed to pour, store or handle this unusual sizing material.

• **BITUSIZE A ADHESIVE EXTENDER**—Higher solids, less moisture, more uniform glue lines at less cost with higher waterproofing value.

ORDER BITUSIZE IN TANK CARS OR DRUMS

AMERICAN Bitumuls & Asphalt COMPANY

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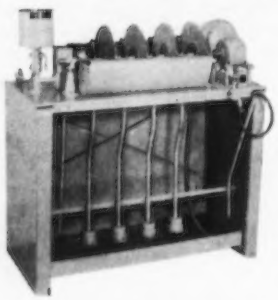
E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Salisbury, N. C. Columbus 15, Ohio
St. Louis 17, Mo. Mobile, Ala. Baton Rouge 2, La. Tucson, Ariz. Inglewood, Calif.
Oakland 1, Calif. Portland 7, Ore. Seattle, Wash. Washington 6, D. C. San Juan 23, P. R.

It will speed the reply to your inquiry to mention Paper Trade Journal.

CLARK MODEL 46
THE STRAIGHT LINE PULP CLASSIFIER



Control beating and refining processes on groundwood or chemical pulps. Excellent for coarse and fine pulps. Screens from 8 to 250 mesh available. Eight complete tests in one hour. Results reproducible within 1%. No recirculation or eddy currents. Open construction offers visual proof of progress of classification. Easily cleaned. Minimum Maintenance.

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Manufacturer of
Machinery and equipment for Mechanical and Chemical Pulp Mills and Special Machinery

ALVIN H. JOHNSON, & CO.
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415 LEXINGTON AVENUE
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Consulting Engineers to
The Pulp and Paper Industry
Since 1929

PRICES

MARKET WOOD PULP

Fourth Quarter Contract Prices Per Short Air-Dry Ton
Delivered Basis — Varying Freight Allowances

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood		‡$60.00/$95.00*	*$80.00/$85.00*	§$78.00/ —	$75.00/$80.00§
Kraft, Bleached	140.00/147.50	145.00/155.00	$137.50/140.00§		$137.50/145.00*
Semi-bleached, Kraft	135.00/ —	130.00/135.00	$132.50/135.00§	130.00/135.00*	
Kraft, Unbl.	95.00/105.00	95.00/135.00	*100.00/105.00*	100.00/135.00*	100.00/105.00§
Sulphite, Blchd.	140.00/ —	140.00/ —	$132.50/140.00*	140.00/ — *	$130.00/145.00§*
Sulphite, Unblchd.	120.00/ —	120.00/ —	$110.00/120.00*	120.00/125.00*	
Sulphite, Unbl. Glassn.		124.00/ —	*124.00/ —		
Soda, Blchd.	140.00/ —	140.00/ —			

‡ F.o.b. Shipping Point. § On Dock Atlantic Ports. * Freight allowed.

RAG MARKET

New Domestic Cotton Cuttings
Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$12.50/$12.75
No. 1 Unblchd. Muslins	13.50/ 13.75
Blchd. & Unblchd. Underwears	14.50/ 15.50
Blchd. Canton Flannels	11.00/ 11.50
No. 1 Light Silesias	8.00/ 8.50
No. 1 Light Prints	6.50/ 7.00
No. 1 Blue Overalls	7.00/ 7.50
Suntan Khakis	6.25/ 6.75
Fancy Shirts	6.50/ 7.00
Mixed Khakis	4.00/ 4.25
Cottonades	4.25/ 4.50
No. 1 Washables	3.25/ 3.50

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$2.75/$3.00
Cotton Pants & Overalls	2.00/ 2.25
Thirds and Blues, Repacked	1.55/ 1.65
No. 2 Roofing Rags	.80/ .85

COTTON LINTERS

Memphis Market
F.o.b. Oilmills

	Nov. 10 Per 100 lbs.
Grade 1 n.a.	
2 } 1st cut—felting	$12.50/ $9.50
3 } 1st cut—felting	9.00/ 8.00
4 } 1st cut—felting	7.50/ 5.00
5 } 1st cut—felting	4.50/ 3.75
6 } * 2nd cut—chemical	3.50/ 3.50
7 } * 2nd cut—chemical	3.50/ 3.50

* Based on 73% cellulose.

Bagging
(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$3.75/$4.00
Heavy Wool Tares	4.00/ 4.25
Foreign Scrap Burlap	2.75/ 3.00
Austr. Wool Pouches	3.50/ 4.00
Domestic Manila Rope	6.50/ 7.00
Domestic No. 1 Sisal Strings	5.00/ 5.25

WASTE PAPER MARKET

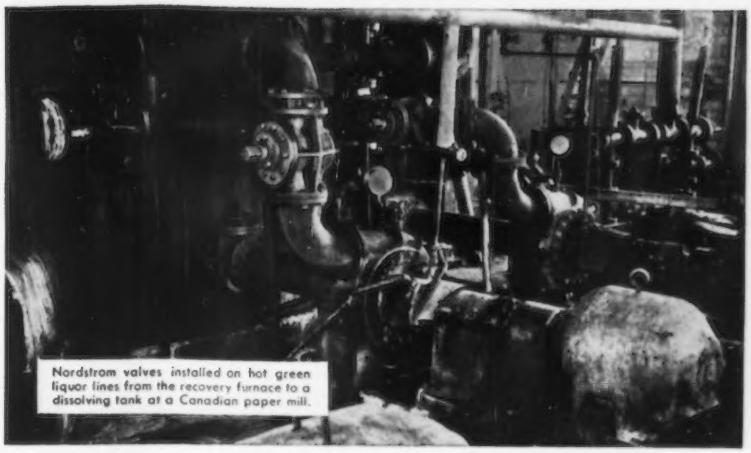
Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fees.) These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal. See TRENDS.

	N.Y.-Phila. Nov. 16	Boston Nov. 14	Chicago Nov. 16	Los Angeles Nov. 10
No. 1 Mixed Paper	$12.00/ 15.00	$10.00/ 11.00	$12.00/ —	$15.00/ —
No. 1 News	14.00/ 17.00	14.00/ 15.00	17.00/ —	15.00/ —
Overissue News	20.00/ 22.00	14.00/ 16.00	20.00/ —	15.00/ —
Mill Wrappers	20.00/ 22.50	13.00/ 15.00	15.00/ —	14.00/ —
Old Corrugated	18.00/ 20.00	20.50/ 21.00	20.00/ —	23.00/ —
Double Kraft Ld. Corr. Cuts	35.00/ 47.50	37.50/ 47.50	40.00/ 47.50	25.00/ 35.00
100% Kraft Corr. Cuts	60.00/ 62.50	50.00/ 60.00	60.00/ —	45.00/ —
No. 1 Brown Kraft	30.00/ 35.00	35.00/ 45.00	25.00/ —	45.00/ —
Triple Sorted Brown Kraft	35.00/ 40.00	42.50/ 50.00	— / —	—/ —
New Br. Kraft Env. Cuts	70.00/ 80.00	65.00/ 77.50	65.00/ —	45.00/ 50.00
New Br. Kraft Bag Waste	65.00/ 70.00	65.00/ 75.00	70.00/ —	35.00/ 40.00
No. 1 Gdwd. Shvs.	nominal	25.00/ 30.00	22.00/ —	27.00/ —
White Newsblanks	55.00/ 60.00	50.00/ 60.00	40.00/ —	55.00/ 60.00
No. 1 Soft Wht. Shvs.	65.00/ 70.00	70.00/ 80.00	60.00/ —	— / —
Hd. Wht. Shvs.	95.00/100.00	95.00/110.00	85.00/ —	95.00/ —
Hd. Wht. Env. Cuts	120.00/130.00	110.00/125.00	100.00/ —	105.00/ —
Col. Tab. Cards	47.50/ 57.50	55.00/ 60.00	50.00/ —	24.00/ —
Manila Tab. Cards, box, bales	72.50/ 80.00	75.00/ 85.00	70.00/ —	47.50/ —
Mixed Ledger	40.00/ 45.00	40.00/ 50.00	50.00/ —	26.00/ —
White Ledger	57.50/ 65.00	60.00/ 65.00	65.00/ —	40.00/ —
No. 1 Book & Mag.†	18.00/ —	18.00/ 22.50	15.00/ —	— / —
No. 1 Rep'd. Hvy. Books‡	30.00/ —	25.00/ 35.00	30.00/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

PRICES OF MATERIALS

Aluminum sulfate:			
cml. bags, c.l. wks.	cwt.	$1.85	/ —
iron-free, c.l. wks.	cwt.	3.55	/ —
Casein, acid prec.:			
dom. sh. pt. c.l.	lb.	.27	/ .37½
imp. ex. dock	lb.	.21	/ .25
Caustic soda:			
c.l. wks. solid, 76% cwt.		3.70	/ —
flak. & grd. 400-lb. drums, c.l.		4.10	/ —
liquid 50% tanks		2.55	
liquid 70% tanks		2.65	
China clay:			
dom. air-float, c.l. wks.	ton	10.00	
water-washed, lump, filler		11.00	
coating		17.60	/30.50
imported, ex. whse.	short ton	16.00	/29.50
Chlorine:			
single-unit tanks, works	cwt.	2.93	/ 3.03
multiple unit, 2-5 cars per yr.		3.80	/ 5.10
Formaldehyde:			
USP, inh. dms. c.l. wks.	lb.	.0666/	—
L.c.l., E. wks.		.071 /	—
Fuel oil:			
Bunker C, No. 6 hvy. tanks, N.Y. harbor	bbl.	2.25	/ 2.28
Lime:			
hydrated bags, wks.	tons	14.50	/15.50
Gum rosin:			
K, M, N, drms, c.l. Savan.	cwt.	7.75	/ 7.80
Rosin size:			
70%, gum & pale grds., tank cars, south, sh. pt.	cwt.	6.60	/ 6.65
Salt cake:			
dom. bulk, c.l. wks.	ton	19.00	/ —
Soda ash:			
light, 58%, bags, wks.		1.65	
bulk	cwt.	1.35	
Sodium silicate, 40° Be.:			
tank-cars, wks.	cwt.	1.00	/ —
drums, wks.	cwt.	1.35	/ —
42° Be. WW, tank-cars, wks.	cwt.	1.60	/ —
drums, wks.	cwt.	1.95	/ —
Sodium peroxide:			
dms. c.l. E. of Miss.	lb.	.186	
L.c.l. do	lb.	.191	/ .201
Soybean, protein:			
chem. isol., wks. c.l. bags.	lb.	.23	/ .23½
Sulphuric acid:			
60° Be. chys. c.l. wks.	cwt.	1.75	/ 2.00
L.c.l. wks.	cwt.	2.30	/ 2.45
tank-cars, wks.		16.30	/18.60
Sulphur:			
crude, c.l. mines, contract,	long ton	25.50	/27.50
f.o.b. vessels Gulf		27.50	/30.50
Sulphur dioxide:			
liquid, coml. cyl., wks.	lb.	.09	
multi-unit cars	lb.	.0535	
Starches:			
pearl corn, bags, c.l. prod. plant		6.39	/ —
white dextrines, c.l. do.	cwt.	7.78	/ —
potato, Idaho, c.l. wks.	cwt.	6.50	/ —
potato, Maine, f.o.b. wks.	cwt.	nominal	
potato, imported, O.D.	bags	7.65	/ 8.20
tapioca, med. Java, O.D.	cwt.	6.75	/ —
Talc:			
domestic, sacks, c.l. wks.	ton	25.00	/30.00
Titanium dioxide:			
anatase, c.l. deld. E. bags.	lb.	.22½/	.23
l.c.l. deld.	lb.	.23½/	.24
rutile, c.l. deld.	lb.	.24½/	.25
l.c.l. deld.	lb.	.25½/	.26



Nordstrom valves installed on hot green liquor lines from the recovery furnace to a dissolving tank at a Canadian paper mill.

DISSOLVING TANK LINES

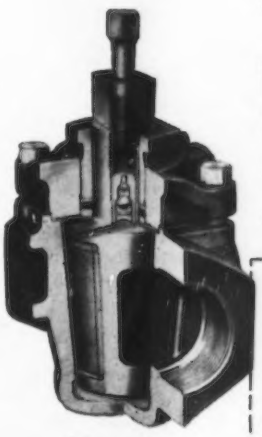
...Another Paper Mill Service where Nordstrom's Lubricaut-Seal Means Positive Closure

Hot green liquor flowing from the recovery furnace to the dissolving tank is a service that's exceptionally hard on most valves. But Nordstroms, cast in special corrosion resistant metals and designed so that the valve seat is never exposed to the line fluid, handle it as easily as they do any other service.

This means that the usual Nordstrom features—positive closure, easy operation and long, trouble-free valve life are assured even on services as hard to handle as dissolving tank lines.

We have prepared a bulletin which should be of interest to anyone whose job it is to specify valves for paper mill services.

Fill out the coupon below and mail it today for your free copy of Bulletin V-217, *Corrosion Resistant Valves.* Rockwell Manufacturing Company, Pittsburgh 8, Pa.



Cutaway view of Nordstrom Lubricant-Sealed valve

ROCKWELL Built Nordstrom Valves

Lubricant-Sealed for Positive Shut-Off

Another ROCKWELL product

Canadian Licensee: Peacock Brothers Limited, Montreal, Quebec

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ROCKWELL MANUFACTURING COMPANY
400 North Lexington Avenue
Pittsburgh 8, Pennsylvania

Please send my copy of *Corrosion Resistant Valves*, Bulletin V-217, to:

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FIRM NAME _____

STREET ADDRESS _____

CITY _____ STATE _____

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1953	Oct. 10 98.3	Oct. 17 97.3	Oct. 24 97.1	Oct. 31 98.4r	Nov. 7 94.6
1952	Oct. 11 90.7	Oct. 18 90.1	Oct. 25 92.0	Nov. 1 91.3	Nov. 8 90.7

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1952	97.1	97.8	95.1	90.4	87.9	87.6	73.3	86.1	81.7	90.7	90.5	85.3	88.6
1953	94.5	94.6	94.4	92.7	93.9	94.2‡	82.6‡	92.5‡	93.7‡	97.4‡			

COMPARATIVE YEARLY SUMMARIES

	1946	1947	1948	1949	1950	1951	1952	1953
Year to Date	101.3	104.3	97.2	87.9	96.1	99.8	90.5	93.4
Year Average	96.9	101.7	92.1	83.7	95.8	98.0	88.6	

‡ Preliminary.
r Revised.

PAPERBOARD OPERATING RATIOS †

1953	Oct. 10 97	Oct. 17 97	Oct. 24 97	Oct. 31 96	Nov. 7 97
1952	Oct. 11 96	Oct. 18 97	Oct. 25 97	Nov. 1 97	Nov. 8 97

Year	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg
1952	81	86	85	82	82	82	71	89	88	96	96	85	85
1953	91	95	95	95	96	93	81	98	94	97			

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

PAPER PEOPLE

R. C. Van Horn

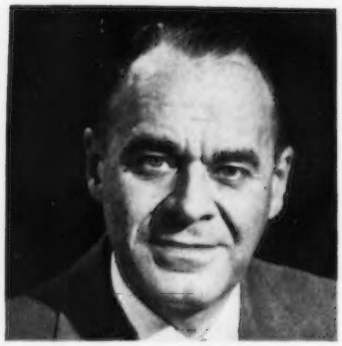
C. D. Alexander

Van Horn Succeeds Alexander at Indianapolis

C. D. Alexander, until recently manager of the Bemis Bro. Bag Co. plant at Indianapolis, has been given new duties at the general company level in connection with certain longe-range studies which the company is undertaking. He is succeeded by R. C. Van Horn, who has been acting manager during Mr. Alexander's recent illness.

Mr. Alexander joined Bemis at the Home Cotton Mill (now the Visinet Mill) in St. Louis in 1913. In 1919, he was made superintendent of the Bemis plant at Omaha. He later went to Minneapolis, where he became assistant to the manager, and in 1931 returned again briefly to St. Louis. After a few months there he was appointed manager at Indianapolis. He will continue to make his headquarters in Indianapolis.

Mr. Van Horn started his career with Bemis as a clerk at Indianapolis in 1906. He handled a variety of office positions, becoming sales manager when Mr. Alexander was named manager. Mr. Van Horn was made general administrative assistant to the manager and then assistant manager in 1952.



DenDooven to Manage Northern Paper Mills Div. of Marathon

Edward E. DenDooven, Green Bay, has been named manager of Marathon Corp.'s Northern Paper Mills division at Green Bay.

All manufacturing operations of Northern Paper Mills now are functioning as a plant in the Marathon manufacturing division. Negotiations which resulted in a merger of the two Wisconsin pulp, paper and paper product producers were announced last January.

Mr. DenDooven for the past seven years has served as Northern general superintendent. In that capacity he was chief manufacturing aide to Milan Boex, now a Marathon vice-president and director, who was Northern president and general manager until provisions of the Marathon-Northern merger became effective.

Backed by 26 years of experience in the paper industry, Mr. DenDooven will coordinate activities mapped to integrate Northern manufacturing operations into those of Marathon. A native of Green Bay, he has spent his entire professional life in the paper industry.

Marathon expects to utilize Northern know-how in other areas of the company's diversified manufacturing operations. For example, they expect to draw upon the broad engineering knowledge of Harry W. Gochnauer, Northern's chief engineer, in solving overall problems affecting the entire organization.

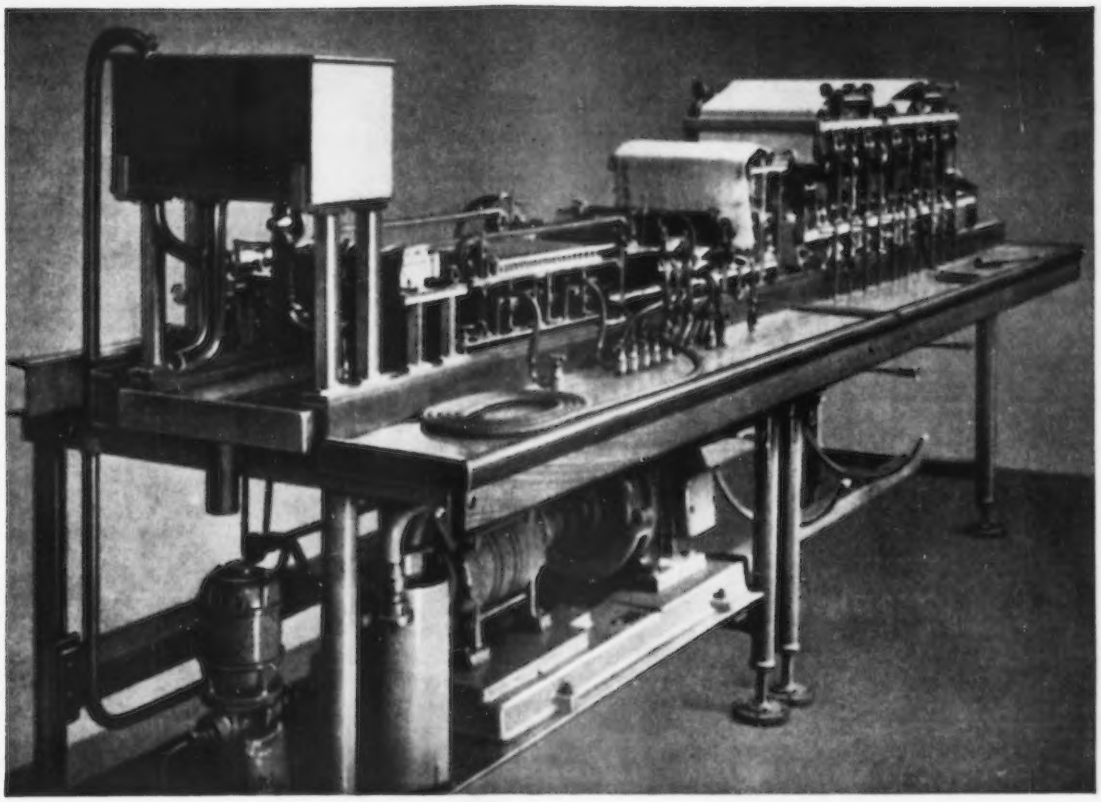
There will be no significant changes in methods of operation at Northern.

Huyssoon Heads Continent Sales and Manufacturing

Arnold B. Huyssoon has been named senior vice-president and general manager of the paperboard division of the Continental Paper Co., Ridgefield Park, N. J. This combines the company's paperboard sales and manufacturing under a single executive officer.

Mr. Huyssoon has been with Continental for 33 years. For two years during World War II he served as Director of the Paperboard Division of the War Production Board.

ANNOUNCING...



the new P & W Midget Fourdrinier Paper Machine

Less than 1/5 the cost of ordinary experimental paper machines

- **9-inch trim** compared to 36-inch for most other experimental machines. This means a great saving in furnish required.
- **Quality of paper manufactured** comparable to that of a full-size Fourdrinier Paper Machine. Operates under same temperature and pressure conditions.
- **Runs at speeds up to 8 ft./min.**
- **Produces up to 35 pounds** of paper per hour.
- **For experiments with new types of paper** or to run private laboratory tests without interfering with full-size machine production.
- **Solves problems** relating to improvement of existing types of paper and development of new qualities of paper.
- **Requires only one operator** and 2.5 kw power consumption.
- **Overall dimensions:** 10'6" long x 2'8" wide x 4'6" high.
- **Less than 1/5 the cost** of ordinary experimental machines.

Write today for details

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EXPORTERS TO ALL WORLD MARKETS...A WORLD-WIDE ORGANIZATION

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CHAS. T. MAIN, INC.
CONSULTING ENGINEERS
Process Studies, Design, Specifications and Engineering Supervision
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STAINLESS STEEL CASTINGS
FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS
MICHIGAN STEEL CASTING CO.
DETROIT 7, MICHIGAN

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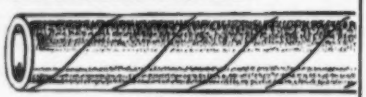
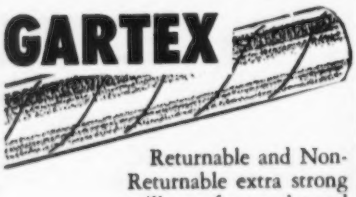


Non-Returnable, Durable standard mill core.

GARTEX



Returnable and Non-Returnable extra strong mill core for regular and special needs.

MADE TO YOUR SPECIFICATIONS
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Lean Named Vice-Pres. of Rex

Rex Paper Co., Kalamazoo, has appointed John E. Lean vice-president and general manager. Mr. Lean for the past eight years has been associated with the Harvey Paper Products Co., of Sturgis, Mich. He assumed his new position on November 16.

Promotions in Nepco Technical Department

Vernon Iverson was named technical control supervisor of the Nekoosa mill and Edward Nissen took over Mr. Iverson's former work as development supervisor in the central lab.

Mr. Iverson's new position entails quality control work in both pulp and paper mills at Nekoosa, mill investigations and trouble-shooting, as well as supervision of experimental pulping and bleaching.

Ed Nissen came to Nepco August 17, 1951. He was called back into service for another tour of duty in November, 1951, and returned to Nepco May 1 of this year. His job as development supervisor involves laboratory and pilot plant scale investigation leading to the development of new grades and improvement on present paper grades.

PULP MEN VISIT FRANCE — Allan Hill (left), vice-president, Montmorency Paper Co., and J. W. Wing, general manager, Gaspesia Sulphite Co., Ltd., recently flew to Paris to confer with pulp consumers relative to the output of Gaspesia's new bleached pulp installation at Chandler, Que.

P. H. Glatfelter Wins National Conservation Award

P. H. Glatfelter, president of the P. H. Glatfelter Co., of Spring Grove, Pa., is one of five men to receive an American Forestry Association conservation award for 1953. The presentation was made last week in Washington, D. C.

In presenting the award, Robert N. Hoskins, chairman of the AFA award committee referred to Mr. Glatfelter's conservation accomplishments as: "Perhaps the East's most distinguished example of what true enlightened industrial leadership can accomplish in making the community a better place in which to live." Mr. Glatfelter's pioneering work in the use of oak for wood pulp was also mentioned in the citation. The P. H. Glatfelter Co. operates certified Tree Farms in Pennsylvania, Maryland and Virginia. Mr. Glatfelter is treasurer of American Forest Products Industries, the national coordinator of the Tree Farm program. He is a former head of the Pennsylvania Forestry Assn.

Others who received conservation awards this year included: Sherman Adams, assistant to President Eisenhower and former governor of New Hampshire; George L. Drake, of Shelton, Wash., president of the Society of American Foresters and a Penn State alumnus; Thomas V. Downing, assistant state supervisor of agricultural education for Virginia; and Ernest H. Linford, Salt Lake City editorial writer.

President Eisenhower opened the Fourth American Forest Congress at which awards were made.

Gardner Promotes Hanna and Riley

Ed Hanna has been promoted to assistant superintendent of the Lockland retail box plant of the Gardner Board and Carton Co. He joined Gardner in 1936 as a stock handler and packer in the retail box plant. He worked his way up through a series of jobs and became a printing foreman in 1946. In 1951, he was assigned to the Gardner executive management training program and attended the company printing school at the West Virginia Institute of Technology. In 1952, he was promoted to staff assistant to the superintendent of the Middletown carton plant.

Benjamin Riley has been promoted to assistant superintendent of the Lockland carton plant of Gardner. He joined the company in 1950 as a senior industrial engineer. In 1951, he was assigned to the Gardner executive management training program and attended the company printing school at the West Virginia Institute of Technology. In 1952, he was appointed staff assistant to the superintendent of the Lockland carton plant.

PAPER TRADE JOURNAL CLEARING HOUSE PAPER TRADE JOURNAL

RATES FOR ADVERTISING (PAYABLE IN ADVANCE)

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HELP WANTED

MEN WANTED—POSITIONS OPEN

We can place—Manager for paper school supply mfg.; gen. mgr. roofing plant; supt. paper coating div.; mgr. multiwall bag mfg.; production supervisor lightweight tissue mill; asst. supt. Cylinder board mill; employment mgr. (South); asst. supt. for insulating papers; supervising coating department.

Chemists, chem. engineers and technical directors (several); salesmen for chemical dyestuffs and mechanical equipment; master mechanics, plant engineers, designers and draftsmen (several); Cylinder and Fourdrinier mach. foremen (several); foreman laminating, printing, bag cutting and bag making.

LIST YOUR APPLICATION WITH US. IT WILL BE CONFIDENTIAL.

CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 2-6547
294 Washington St., Boston 8, Mass.

N-20

SUPERINTENDENT

For Finishing Department of Fine Paper Mill located in Middle Atlantic States. Must be able to handle all operations after the Paper Machines, including integration with shipping. Progressive company. Salary open. Send complete resume and recent snap-shop to Box 53-479 care Paper Trade Journal.

D-11

SALESMAN WANTED

Age 30 to 40 — Willing to travel — mill making food paper specialties with national distribution — Excellent opportunity for right man. Write full details in confidence. Address Box 53-477 care Paper Trade Journal.

N-20

MECHANICAL ENGINEER

Expanding organization offers excellent opportunity for M.E. Recent graduate or experienced. Salary commensurate with ability. North Florida location. Write box 53-472 care Paper Trade Journal.

D-11

DRAFTSMAN

Our construction program will require the services of a draftsman for several months with possibility of developing into permanent position. Pulp mill or related experience desirable. North Florida location. Write box 53-473 care Paper Trade Journal.

D-11

INDUSTRIAL ENGINEER

Expanding organization offers excellent opportunity for I.E. experienced in material handling. Salary commensurate with ability. North Florida Location. Write box 53-474 care Paper Trade Journal.

D-11

WANTED—Personal Manager with experience in Southern Kraft Mill operations. Address Box 53-478 care Paper Trade Journal. D-4

HELP WANTED

ASSISTANT SUPERINTENDENT

We are a Wisconsin paper mill which has gradually expanded for a number of years, so we are now looking for an Assistant Superintendent. This man would hold a position of great responsibility in our mill, so he must have practical experience as a papermaker plus administrative ability. The right man probably has held, or now holds, a similar job in another mill, but has some good reason to make a change. The salary will be in proportion to the ability he can bring to us. In addition, we have complete group insurance protection, paid for by the Company, and an excellent profit-sharing retirement plan. Apply by letter giving your complete background and qualifications to Box 53-457 care Paper Trade Journal. Your replies will be held in strict confidence.

N-27

MAINTENANCE SUPERINTENDENT

Pulp and newsprint mill now under construction is developing its permanent organization and has need for Maintenance Superintendent. Will report to Chief Engineer and direct all maintenance functions through several Maintenance Foremen. Experience in supervision of maintenance activities in pulp and paper industry is essential. Address:

Industrial Relations Department
Bowaters Southern Paper Corporation
CALHOUN, TENNESSEE

TF

WANTED

MANAGER FOR PAPER DISTRIBUTOR IN FAR EAST. WE HAVE AN OPPORTUNITY FOR A CAPABLE MAN WITH SOME EXPERIENCE IN HANDLING FINANCES. NO FOREIGN LANGUAGE NECESSARY. MUST BE SINGLE. PREFERENCE WILL BE GIVEN TO PERSON WHO HAS TRAVELED OR LIVED IN FAR EAST. GIVE FULL DETAILS OF EXPERIENCE AND PERSONAL HISTORY TO BOX 53-449 CARE PAPER TRADE JOURNAL.

N-20

CHEMIST

With Box Board Mill experience for mill located near Chicago. State experience, age and salary expected. Reply to General Offices, NATIONAL BISCUIT COMPANY, 449 West 14th St., New York, New York.

N-20

WANTED—Quality Control Engineer to install and supervise quality control group in corrugated box division of Midwestern Plant. Young man with experience in both quality control and production preferred. Address Box 53-354 care Paper Trade Journal. TF

HELP WANTED

Man thoroughly experienced in manufacture of Kraft Tissue and Carbonizing Grades to act as assistant to Superintendent. Applicants must have experience as Machine Tender or Tour Boss on Carbonizing Grades. Mill located in Southwest. Applicants please state experience and salary required in first letter. Addres Box 53-465 care Paper Trade Journal.

N-20

PAPER MILL SUPERINTENDENT, TOUR FOREMEN (2)—For established groundwood printing and specialty mill. Tour Foremen not over 40 years. Superintendent not over 45 years. High salaries and excellent opportunities for right men. Address Box 53-463 care Paper Trade Journal.

N-27

WANTED—Machine Tenders and Back Tenders for Tissue Mill, cylinder machine. Also, Machine Tenders for 5 cylinder machine on Folding Boxboard. Good pay. Rapid advancement. Address Box 53-364 care Paper Trade Journal.

TF

SUPERINTENDENT experienced flat and square bags. Bagprint. Matador, Potdevin, etc. Some knowledge of printed bags useful. Excellent opportunity for permanent future. All replies confidential. Address Box 53-402 care Paper Trade Journal.

TF

WANTED—Experienced Adjuster as Foreman for Bottoming Department. Have S. & W. and Coty Bottomers. Excellent opportunity. Address Box 53-470 care Paper Trade Journal. D-4

TOILET TISSUE Superintendent for small converting plant. Must be familiar with Paper Converting and Hudson Sharp Converters and Lawton Wrapping Machines. Address Box 53-476 care Paper Trade Journal.

N-20

SITUATIONS WANTED

GENERAL SUPERINTENDENT—30 years experience on free sheet book, bond, writing, offset and similar papers. Also an expert on groundwood specialtets. Wish position as general superintendent or manager any size mill. Will go anywhere. Welcome Latin American or Canadian service. Good reason for wishing change. Address Box 53-466 care Paper Trade Journal.

N-20

SUPERINTENDENT or Tour Foreman with many years of practical papermaking on all grades of boxboard. Capable of assuming full responsibility for production, quality and personnel problems. Best of references. Address Box 53-464 care Paper Trade Journal.

N-27

FOR SALE

FOR SALE:

One 12 x 12 inch Sheet Mold Excellent Condition. Very reasonably priced. Contact

BUTLER PAPER CORPORATIONS
223 W. Monroe St., Chicago 6, Ill.

N-20

FOR SALE

FOR SALE—WINDERS

1—86" Langston Slitter and Rewinder complete with backstands. Will make rolls up to 48" diameter, fully reconditioned. Can now be seen in operation.

1—118" Beloit Slitter and Rewinder, anti-friction-bearing equipped, complete with unwind stands, will accommodate 54" dia. roll of paper. Rewind section will make 36" dia., 14" dia. winding drums, ball-bearing slitters etc.

1—102" Moore & White 4-Drum Winder & Slitter, complete with fast and slow speed clutch. In excellent working condition. Collapsible shafts.

1—194" Beloit Rebuilt Paper Machine Winder completely rebuilt in 1947, ran on a machine operating at 1000 F.P.M.

OSBORNE PAPER MILL EQUIPMENT CORP.
FULTON, N. Y. Tel. 2-4254
N-20

FOR SALE

110" Hamblet Sheeter.
60" Finlay Sheeter.
40" Clark Single Sheeter.
48" Kidder model CH Slitter.
28" Hobbs shear cut Slitter.
BACK-STANDS, ANY SIZE, MADE TO ORDER

Thomas W. Hall Company, Inc.
120 West 42nd St., New York 36
(Plant at Stamford, Conn.) TF

FOR SALE—80" Creper and Waxer complete with Steam Plant. All new equipment. Address Box 53-293 care Paper Trade Journal. TF

FOR SALE—One Beloit Yankee drier reground and coated with bearings and gear for drive by silent chain. Ten foot diameter eleven foot face. Has been drying 55,000 pounds paper daily with forty points steam. Address Box 53-452 care Paper Trade Journal. N-20

FOR SALE

FOR SALE—BEATERS

2—Dilts 62" dia. 48" face 1500# C. I. tub Beaters.
1—Dilts 3000# C. I. tub Beater, Roll 72" dia. 60" face, tub 30' long 15' wide.
2—54" x 48" Hollow Midfeather Iron Tub Beaters, new fillings.
2—Noble & Wood Cast Iron Tub Beaters 1800# capacity. New in 1938.
2—Valley Iron Works Cast Iron Tub Beaters 1800# capacity. New in 1938.
2—Hollow Midfeather Type Beaters 54" dia. 48" face, 1500# capacity iron tubs.

OSBORNE PAPER MILL EQUIPMENT CORP.
FULTON, N. Y. Tel. 2-4254
N-20

FOR SALE

1 Fiefield lathe 36" swing—20 ft. bed.
Two 10 h.p. direct connected Aurora boiler feed water pumps, 3 phase 60 cycle 440 and one 300 gallon extra heavy hot water receiving tank.

Stockport Paper Corp., Stockport, N. Y.
Tel.—Hudson, N. Y.—8-6545
N-27

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE—Eight new, unused, 12 plate bronze Vat Flat Improved Screens for installation in 2 lines of four screens. All accessories including V Belt Drives, Style B Flow Boxes and Bronze Holddown Bars, etc. Also Magnus Chrome Nickel Screen Plates Style E for above screens. Full specifications on application. Address Box 53-475 care Paper Trade Journal. D-4

FOR SALE

DEINKING, BLEACHING, WASTE PAPER PROBLEMS—Expert consulting services, laboratory facilities, available. Operational problems of existing plants; design of new plants; engineering; construction. In strictest confidence. Address Box 53-19 care Paper Trade Journal. TF

FOR SALE—Cylinder machine consisting of 1 48" cylinder, suction roll, three heavy presses, thirty tons drying capacity, cut off knife, line shaft and complete drive. Will trim about 70 inches. Now erected available for immediate shipment. Address Box 53-451 care Paper Trade Journal. N-20

FOR SALE—750 pound Iron Tub Beater in perfect condition. Can be seen in operation. Address Box 53-469 care Paper Trade Journal. N-27

WANTED

WANTED

WHITE COATED MILL BROKE
(free of groundwood)

ON CONTRACT BASIS IF DESIRED.

Please furnish samples and ask for our attractive price.

DREYFUSS PAPER STOCK COMPANY
P. O. Box 984, Kalamazoo, Michigan
Phone 5-1103
N-27

FOR SALE

72" Trim Machine

2 cylinder moulds with vats
2 couch rolls
Suction couch
First press 24" rolls
Second press 18" rolls
39 dryers
2 bowl reel
4 drum winder
Drive, line shaft, pulleys
Foundation plate

Also included:—

3 Rotary Digesters 7' x 19' with drive, used six months.
Green Bay Saveall
No. 4 Shartle Hydrafiner with motor
Dilts bandless beater 56x48" with cast iron tub
Impco re-pulper
2—8x6 Oliver filters, stainless steel heads and wire.
2—8x4 Oliver filters, stainless steel heads and wire.
4 Bird consistency regulators, new
3—5 HP Reeves motor drives
Wallace Tiernan chlorinator
Impco chemical mixer
2 Foote agitator drives, 6—90—150 with 15 HP motors
2 Foote agitator drives, 10—HGV—with 15 HP motors
Buffalo limit load exhauster, size six, class I.
Sturtevant blower No. 281181, with 220-440 volt motor
Sutor belt vacuum pump with motor
2 vacuum receivers
2 Frederick centrifugal pumps 200 GPM, 100 ft. head with motors
1 Frederick centrifugal pump 150 GPM, 25 ft. head with motor
Size 2½ Gardner Denver centrifugal pump with motor

FRANK H. DAVIS COMPANY

175 RICHDALE AVENUE **CAMBRIDGE 40, MASS.**
TF

TELEPHONE
HUMBOLDT 2-2177

CABLE ADDRESS: JACKROSS

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

Beloit 96" Fourdrinier Machine, operated 600 ft. per minute. Immediate delivery. Full description and photo on request.

AGITATOR DRIVES
2—Cleveland enclosed—3 h.p. Ratio 24 to 1.
1—Foote Bros. enclosed—15 h.p. Ratio 33 to 1.
2—Portereducer—size 40. Ratio 50-1, with 15 h.p., 1740 r.p.m. motor and controls.
1—Portereducer—size 20. Ratio 35-1, with 5 h.p., 1740 motor and controls.

BALERS
1—Economy Baler—20¼ x 24 x 49.
1—Economy Baler—60 x 32 x 96, with motor.

BOILERS
1—Union Iron Works, oil fired, 400 h.p., 250# pressure. Complete with pumps and preheaters. Insured.

CALENDER ROLLS
46—Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—Black Clawson 90" 7 roll with 2 spare rolls.
1—Pusey & Jones 88"—7 roll.
1—Lobdell 96" 10 roll, with water cooled bearings, doctor and drive.

CYLINDER MOLDS
1—77" face x 48" dia.—Stainless Steel Shaft.

DAMPENER
1—Valley Micromist Unit for water finish on paper—120" deckle.

DRIVES
1—#3 Reeves anti-friction bearing.
1—Beloit enclosed drive right angle, ratio 3 to 1, with couplings and pulleys.
1—Link-Belt 40 h.p., ratio 2.2-1, 500 r.p.m.—227 r.p.m.
1—Cleveland enclosed drive right angle, 7 h.p.
3—#0 Reeves Drives—horizontal type.
1—#6 Reeves vertical, ball bearing.
1—Lewellyn, 20 h.p., totally enclosed. Horizontal class C-6-1. New.
1—U. S. Varied Drive Synchronous Gear Motor, 3 h.p., Ratio 2 to 1. Gear Ratio 1.82-1.
1—Reeves #3G. Horizontal. Enclosed drive.

DRYERS
17—160" face x 48" diameter.
2—160" face x 36" diameter.
1—130" face x 48" diameter.
16—127" face x 42" diameter.
1—126" face x 48" diameter.
1—124" face x 48" diameter.
1—116" face x 48" diameter.
1—116" face x 36" diameter, with gears and bearings.
1—116" face x 24" diameter Lead Dryer.
1—110" face x 42" diameter, with bearings.
1—104" face x 36" diameter.
1—103" face x 48" diameter.
1—102" face x 48" diameter, with bearings.
10—88" face x 48" diameter, with frames, gears, bearings and felt roll.
3—88" face x 36" diameter, with frames, gears and bearings.
1—86" face x 36" diameter, with frames, gears and bearings.
26—46" face x 48" diameter, with gears, bearings and steam joints.
8—42" face x 36" diameter, with frames, gears and bearings.

DYNAPULPER
1—Rice Barton 9 ft. Dynapulper, with 54" diameter impellers. Requires 50 HP motor.

FILTERS
1—Oliver Vacuum Filter, 10' face x 5' 3" diameter. Steel vat.

FLAT SCREENS
3—8 plate Sandy Hill Roller Shoe.
2—Bagley & Sewall 8 plate.
2—16 plate Sandy Hill Roller Shoe with scrapers.

FOURDRINIER WIRES
3—New Lindsay 76" x 47 ft. 10"—60 mesh.

HYDRAULIC PRESS
1—Thropp 200 ton. Steam platens, 40" x 40" with pump.

JORDANS
1—#6 Miami, for motor drive.
2—E. D. Jones Pony, 3/16" stainless steel fillings—banded plugs, spare new fillings.
1—Smith & Winchester Standard with granite fillings.
1—#4 Miami, anti friction bearings, with 75 h.p., 440 volt motor and controls. Spare new fillings.

KAMYR WET END
1—Kamyr Wet End. Cylinder 59" diameter x 80" face. Steel vat—rubber couches—spare rolls and spare parts.

KNIFE GRINDER
1—100" Hanchett Knife Grinder with motor.
1—130" Hanchett, complete with Coolant pump, 2 spare wheels and motor.

LABORATORY EQUIPMENT
1—New Sperry 12" Filter Press—10 plate.
1—Rice Barton 5 lb. stainless steel Dynapulper, with electric heater. For Sale or For Rent.

MOTORS
12—120 h.p. Westinghouse Synchronous enclosed. Brand new. 440 volt, 720 r.p.m. Forced air ventilation.

PULP EQUIPMENT
1—APMEW Ball Bearing Pulp Screens—30 ton capacity—outward flow.
1—Tyler Chip Screen #600, single deck.

PUMPS
44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year.

REELS
1—Pusey & Jones 162" drum reel, complete with unwind stand and water cooled brake.
1—Downingtown 104" 2 bowl Reel, complete with drive and adjusting devices.

REFINERS
1—Dilts Hydrafiner with GE 150 h.p., 1800 r.p.m. motor and controls.

ROLL GRINDER
1—Lobdell 18' Roll Grinder handles 26" maximum diameter rolls.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY DIGESTER
1—New Biggs 12½ ft. Rotary with drive—100# pressure.

ROTARY SCREENS
2—#2 Bird—Copper vat.
1—#2A Bird with copper vats.

SAVEALLS
1—Bird #5 with enclosed drive and 3 h.p. motor.
1—Sandy Hill, stainless steel. Cylinder 100" face x 60" diameter. 18" diameter rubber couch.
2—Bird #6A, complete, including motors. Anti friction bearings throughout.

SCREW PRESSES
2—Valley Voith Screw Press, size 2A.

SHEETERS
1—Hamblet 124" Duplex Sheeter with Maxson layboy—8 roll backstand—motor and starter.
1—Moore & White Simplex 114" Sheeter with slitters—counter, Maxson layboy overlapping delivery, 8 roll backstand, motor and starter.
1—Hamblet 84" single knife—with slitting device.
1—Moore & White 82" single knife, with layboy, 12 roll backstand & motor.
1—Moore & White 68" single knife, with layboy, 12 roll backstand & motor.

SLICE
1—Beloit 132" adjustable slice, complete, including stands. Slice is of all bronze construction. Operated 1000 feet per minute.

SLITTERS AND WINDERS
2—Langston 112" anti friction bearings, complete with 20 h.p. motor and controls. 52" rewind.
1—Cameron 72"—Model 10-S. 29" maximum rewind.
1—Hudson Sharp 60" Wax Paper Automatic Slitter and Rewinder.
1—Cameron 52"—Model 9-S-A, anti-friction bearings.
1—Cameron 52"—Model 10-S. 30" Maximum rewind.
1—Cameron 42"—Model 6—24" rewind.
1—Cameron 32"—Model 26-3A. Duplex rewind.

STOCK PUMPS
1—Shartle 10 x 20 Single Plunger Pump.
1—Beloit 8 x 10 Triplex.
2—Shartle Agi-flo, 13" suction, 14" and 4" discharge. Anti-friction bearings.
1—Moore & White 10 x 16 Triplex.
1—Moore & White 8 x 8 Triplex.

SUCTION COUCH ROLLS
1—Millspaugh 36" diameter x 234" drilled face with enclosed drive, water cooled bearings 12" suction boxes.
1—Millspaugh 156" drilled face x 22" diameter Suction Couch. Operated at 1000 ft per minute.
1—Sandusky Suction Couch, 25" diameter x 122" drilled face.

SUCTION FELT ROLL
1—New Downingtown 186" drilled face x 16" diameter, with anti friction bearings and stands.

SUCTION PRESS ROLLS
1—Sandusky 84" drilled face x 22" diameter, rebuilt.

THICKENERS
1—IMPCO 5 ft. diameter Vacuum Thickener. 80" face with steel vat and spare couches. Used 3 years.
1—Hewitt 42" diameter x 88" face cylinder 16" diameter rubber couch—all anti friction bearings. Steel vat, 2 years old.
1—Thickener, 36" diameter x 86" face cylinder, 16" diameter rubber couch, anti friction bearings, iron end vat. Complete with 5 h.p. motor and reducer.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. Model 141, automatic 81" Perforator, ball bearing.

TRIMMERS
1—Seybold 84" Model 12 ZH, with power back gauge and motor.
1—Seybold Dayton 74", with motor.
1—Seybold Dayton 64", with motor.
1—Seybold 64"—20th Century—Power back gauge.
1—Seybold 48" Dayton—Power back gauge.
1—Seybold 45"—20th Century—Power back gauge.
1—Acme—44" Trimmer.

VACUUM PUMPS
1—Nash ½ H-5 Vacuum Pumps.
1—Connersville 2.1 cu.ft. per rev. With base.
2—Connersville 1.65 cu.ft. per rev. With base
1—Connersville .75 cu.ft. per rev With base.
1—Connersville Type RSB. With base.

VOITH INLETS
2—Valley Iron Voith Inlets, adjustable 83" to 86"—brass lip, stainless steel apron.
1—Valley Iron Voith Inlet 156" with motor drive, brass construction. Operated at 1000 ft per minute.

VORTRAPS
2—4" Stainless Steel with rubber lined heads.
2—3" stainless steel, with valves.
1—1½" stainless steel, with valves.
2—Stainless Steel Vortrap Capacity Tanks.

WET MACHINES
1—Rogers 96" double press Wet Machine, 48" diameter cylinder—rubber couch, spare new top and bottom felts.

FOR SALE

CAMERON SLITTERS

2—72" Type 10-11 Shear-cut.
1—72" Type 10-10A.
1—72" Type 26-3D Duplex.
4—62" Type 40-1-AF.
1—60" 26-3A Duplex.
1—52" Type 9-5.
1—42", 1—52" and 1—62" Type 10-5.
1—42" Type 26-2A.
1—42", 1—50,, and 1—62" Type 6.

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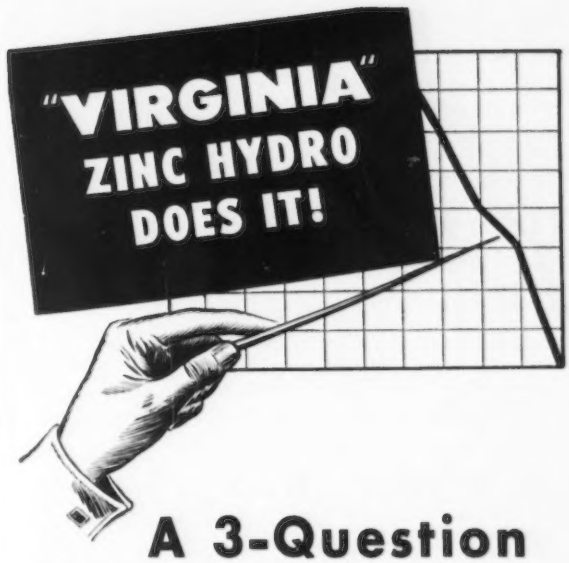

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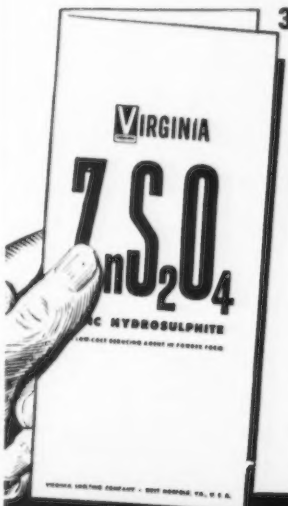

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Gibbs-Brower Company, Inc.
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Manchester Machine Co.
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Waldron Corp., John

ROLL COVERS
The Goodyear Tire & Rubber Company
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ROLL HANDLING EQUIPMENT
Dilts Machine Works

ROLL STANDS
Cameron Machine Co.
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ROPE CARRIERS
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ROTARY KILNS
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ROTARY SCREENS
Bird Machine Company
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ROTARY STEAM JOINTS
Johnson Corp.
The Moore & White Co.
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Shartle Bros. Mch. Co.

RUBBER COVERED ROLLS
Stowe-Woodward Inc.

RUBBER PRODUCTS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company
Stowe-Woodward Inc.

SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SATURANTS
B. F. Goodrich Chemical Co.

SATURATING MACHINES
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Chicago Bridge & Iron Co.
Improved Paper Machinery Corp.
Moore & White Co.
Shartle Bros. Machine Co.
Walker Process Equipment, Inc.

SAWS
Simonds Saw & Steel Co.
Moore & White Co.

SCALES
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
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SCREENS
Appleton Wire Works
Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Mundt, Chas. & Sons
Murray, D. J., Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SCREENS, CHIP (Vibrating)
Link Belt Co.

SCREENS (Perforated)
Mundt, Chas., & Sons

SCREENS (Rotary)
Bird Machine Company
Mundt, Chas., & Sons

SHAKES
Black Clawson Company
Downingtown Mfg. Co.

SHAKE STICKS
Westinghouse Electric Corp.

SHEET MACHINES
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hermann Mfg. Co.
Testing Machines, Inc.
Valley Iron Works Co.

SHOWER PIPES
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Emerson Mfg. Co.
Moore & White Co.
Sandy Hill Iron & Brass Works
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co.
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SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.
Jackson & Church Co.
Jeffrey Mfg. Co.
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SIZE PRESSES
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Moore & White Co.
Rice Barton Corporation
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SIZING
American Bitumuls & Asphalt Co.
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
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W. & L. E. Gurley
Testing Machines, Inc.
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Antara Chemicals Division, General Dyestuff Corp.
The Dow Chemical Company
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SLITTERS
The Bagley & Sewall Company
Black-Clawson Company
Cameron Machine Co.
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Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson-Sharp Mch. Co.
Improved Machinery Inc.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Paper Converting Machine Co.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
Chicago Bridge & Iron Co.

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W. & L. E. Gurley
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Dilts Machine Works
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Michigan Steel Casting Co.

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Armco Steel Corp.
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Elliott Company, Inc.

STEAM JOINTS
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Rice Barton Corporation
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Shartle Brothers Machine Co.

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Armco Steel Corp.
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STRAINERS
Elliott Company, Inc.
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STRETCH TESTER
Testing Machines, Inc.
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STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
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Shartle Brothers Machine Co.
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Appleton Wood Products
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Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
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Beloit Iron Works
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American Cyanamid Company, Industrial Chemicals Division
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Chicago Bridge & Iron Co.
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Shartle Brothers Machine Co.
Valley Iron Works Co.
Walker Process Equipment, Inc.

THICKENER SCREENS
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Downingtown Mfg. Co.
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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
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Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

WEB TENSION CONTROL
Dilts Machine Works (Kohler Systems)
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Black-Clawson Company
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Improved Machinery Inc.
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The Sandy Hill Iron & Brass Works
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Antara Chemicals Division, General Dyestuff Corp.
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WHITE WATER TREATING EQUIPT.
Bird Machine Co.
Bulkley, Dunton Processes, Inc.
Hungerford & Terry, Inc.
The Sandy Hill Iron & Brass Works

WINDERS & REWINDERS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Dilts Machine Works (Kohler Systems)
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Langston Co., Samuel M.
Manchester Machine Co.
Moore & White Co.
Paper Converting Machine Co.
Pusey & Jones Corp.
Rice Barton Corporation
Ross Paper Machinery Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron, John, Corp.

WINDER & REWINDER DRIVES
Reliance Elec. & Engrg. Co.

WINDING ROLL CHANGERS
Dilts Machine Works
Egan, Frank W., & Co.
Waldron, John, Corp.

WIRE BRUSHES
M. W. Jenkins Sons, Inc.
Williams-Gray Co.

WIRE GUIDES
Black-Clawson Company
Gilbert & Nash
Moore & White Co.

WIRES
Appleton Wire Works
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PAPER TRADE JOURNAL

INDEX TO ADVERTISERS

PAPER TRADE JOURNAL

A

Albany Felt Co. — —
Amercoat Corp. — 4
American Bitumuls & Asphalt Co. — 39
American Cyanamid Co., Industrial Chemicals Div. — —
American Steel & Wire Co. — —
Antara Chem. Div., General Dyestuff Corp. — —
Anthracite Equip. Corp. — —
Apmew, Inc. — —
Appleton Machine Co., The — —
Appleton Woolen Mills — —
Armco Drainage & Metal Products — —
Armco Steel Corp. — —
Armstrong Machine Works — —
Asten-Hill Mfg. Co. — —
Atkins Saw Div., Borg Warner Corp. — —

B

Babcock & Wilcox Co. — —
Bagley & Sewall Co. — —
Bahr Bros. Mfg. Co. — —
Bailey Meter Co. — —
Barrell, Wm. L., Co. — —
Bauer Bros. Co. — —
Behrens Sales Co. — —
Beloit Iron Works Co. — —
Bird Machine Co. — 13
Bixby, R. W., Inc. — —
Black-Clawson Co. — 6
Blaw-Knox Co. — —
Bolton, John W., & Sons, Inc. — —
Bowser, Inc. — —
Brown Co. — —
Buffalo Pumps, Inc. — 53
Bulkley Dunton Processes, Inc. — —

C

Calgon, Inc. — —
Cameron Machine Co. — —
Carthage Machine Co. — 40
Champlain Company, Inc. — —
Chemipulp Process, Inc. — —
Chicago Bridge & Iron Co. — —
Chicago Eastern Illinois R. R. — —
Ciba Company — —
Cities Service — —
Clark-Aiken Co. — —
Classified Advertising — 45
Clearing House — 45
Clinton Foods, Inc. — —
Columbia-Geneva Steel Div. — —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. — —
Corn Products Sales Co. — —
Cowles Co., Inc. — 49
Cram Associates — —
Crane Co. — —
Crucible Steel Corp. of America — 29
Cummins & Barnard, Inc. — 54
Curlator Corporation — —

D

Davis, Frank H., Co. — 46
DeLaval Steam Turbine Co. — —
Denver Equipment Co. — —
DeZurik Shower Co. — —
Diamond Alkali Co. — —
Dietz Machine Works — —
Dilts Machine Works — 6
Dodge Manufacturing Co. — —
Dow Chemical Co. — —
Dow Corning Corp. — 38
Downingtown Mfg. Co. — —
Draper Brothers Co. — —
du Pont, E. I., de Nemours & Co. Aromatics Div. — —
du Pont, E. I., de Nemours & Co. Dyestuffs Dept. — —
du Pont, E. I., de Nemours & Co. Pigment Dept. — 27
du Pont, E. I., de Nemours & Co. Organic Dept. — 2
Dusenbery, John, Co., Inc. — —

E

Ebasco Services, Inc. — —
Egan, Frank W., & Co. — —
Elixman Paper Core Co. — —
Elliott Co. — 30, 31
Elwell Parker Elec. Co. — —
English China Clays Sales Corp. — 54
Enterprise Co. — —
Eriez Mfg. Co. — —

F

Farrel-Birmingham Co., Inc. — —
Ferguson, The H. K., Co. — —
Fitchburg Screen Plate Co. — 55
Foxboro Co. — —
Freeport Sulphur Co. — —

G

Geigy Co. — —
General Dyestuff Corp. — —
General Electric Co. — 34, 35
Gibbs-Brower Co. — 48
Gilbert & Nash — —
Glidden Co. — —
Goodyear Tire & Rubber Co. — Back Cover
Goodrich Co., B. F. — —
Goodrich Chemical Co. — —
Goslin-Birmingham Mfg. Co. — —
Gottesman & Co. — —
Grinnell Co., Inc. — —
Gulf Oil Co. — —
Gurley, W. & L. E. — —

H

Haida Engineering Co. — —
Hall, Thomas W. Co., Inc. — 46
Hamblet Machine Co. — —
Hanchett Mfg. Co. — —
Harbison-Walker Refractories — —
Hardinge Co., Inc. — —
Hayden Wire Works — —
Heinrich, H. H., Co. — —
Hercules Powder Co. — —
Hermann Manfg. Co. — —
Heyden Chemical Co. — —
Holyoke Machine Co. — —
Hooker Electrochemical Co. — —
Huber, J. M. Corp. — —
Hubinger Co., The — —
Hudson-Sharpe Machine Co. — —
Hungerford & Terry, Inc. — —
Huyck, F. C., & Sons — 59

I

Improved Machinery, Inc. — —
Ingersoll Rand Co. — —
Insulmastic Corp. of America — —
International Nickel Co. — —
International Wire Works — —

J

Jackson & Church Co. — —
Jeffrey Mfg. Co. — —
Jenkins Brothers — —
Jenkins, M. W., Sons, Inc. — —
Johnson Corp., The — —
Johnson, Alvin H., & Co. — —
Jones, E. D., & Sons Co. — —

K

Kalamazoo Sheet Metal & Mfg. Co. — —
Kinsley Chemical Co. — —
Knowlton Co. — —
Knox Woolen Co. — —
Koppers Co., Inc. — —

L

Langston, Samuel M., Co. — —
Leffel, James, & Co. — —
Lindsay Wire Weaving Co. — —
Link Belt Co. — —
Lobdell United Co. — —
Lockport Felt Co. — —
Lodding Engineering Co. — —
Lukens Steel Co. — —
Lyddon & Co. — 43
Lynch Corporation — —

M

Magnus Meal Corp. — —
Magnuson Products Corp. — —
Main, Charles T., Inc. — 44
Manchester Machine Co. — —
Mead Board Sales, Inc. — 53
Mead Board Sales, Inc. — —
Meincke & Son — —
Mercer Paper Tube Co. — 44
Merrick Scale Co. — —
Michigan Steel Casting Co. — 44
Midwest-Fulton Co. — —
Mixing Equipment Co. — —
Monsanto Chemical Co. — 19
Moore & Munger — —
Moore & White — 3
Moorhead Electrical Machinery — —
Morden Machines Co. — —
Morningstar, Nicol, Inc. — —
Mount Hope Machinery Co. — —
Mundt, Charles, & Sons — —
Murray, D. J., Mfg. Co. — —

N

Nash Engineering Co. — —
National Aluminate Corp. — 25
National Starch Products, Inc. — —
National Tube Co. — —
Naylor Pipe Co. — —
Neff & Fry Co. — —
Niagara Alkali Co. — —
Nichols Engrg. & Research Co. — —
Nopco Chemical Co. — —
Nordstrom Valve Div. of Rockwell Mfg. Co. — 41
Norton Co. — —

O

O'Donoghue, Roderick — —
Ontario Paper Co. — —
Osborne Paper Mill Equipment Corp. — 46
Oldbury Electric Chem. Co. — —
Owen Bucket Co. — —

P

Pandia, Inc. — —
Paper Converting Mich. Co. — —
Parsons & Whittemore — 43
Peabody Engineering Co. — —
Penick & Ford, Ltd. — —
Perkins, B. F., & Sons Co. — —
Perkins Goodwin Co. — —
Pioneer Paper Stock Co. — —
Pittsburgh Piping & Equip. Co. — —
Poirier Control Co. — —
Powell Valves — —
Price & Pierce, Ltd. — 50
Pulp & Paper Trading Co. — —
Pusey & Jones Corp., The — —

R

Railway Supply & Mfg. Co. — —
Raymond, Chas. P., Service Inc. — 45
Record Fdy. & Machine Co. — —
Red Ray Manufacturing Co., Inc. — —
Reichhold Chemicals, Inc. — —
Reliance Elec. & Engrg. Co. — 10
Research Corp. — —
Restigouche Co., Ltd. — —
Rice Barton Corp. — —
Reidel, Gus. & Son — —
Rockwell Mfg. Co. — 41
Rogers, S. C., & Co. — —
Ronningen Engrg. Sales — 52
Roosevelt Paper Co. — —
Roots-Connersville Blower Co. — —
Ross, J. J., Co. — —
Ross, J. O., Engrg. Corp. — —
Ross Paper Machinery Co. — 47
Rust Engineering Co. — —

S

Sandusky Fdy. Mch. Co. — —
Sandy Hill Iron & Brass Works — —
Seaboard Air Line R. R. Co. — 54
Shartle Bros. Machine Co. — 6
Shell Oil Company — 33
Shuler & Benninghofen — —
Simonds Saw & Steel Co. — —
Sinclair Refining Co. — —
Sirrine, J. E., Co. — 48
Smidth, F. L., & Co. — —
Smith, A. O., Corp. — —
Smith & Winchester Mfg. Co. — —
Socony Vacuum Oil Co., Inc. — —
Sonoco Products Co. — —
Stebbins Engrg. & Mfg. Co. — —
Stowe-Woodward, Inc. — —
Sun Oil Co. — —
Sutherland Refiner Corp. — —
Swenson Evaporator Co. — Front Cover

T

Taylor Instrument Cos. — 37
Taylor Stiles & Co. — —
Tennessee Coal, Iron & R.R. Co. — —
Testing Machines, Inc. — —
Texas Co. — —
Texas Gulf Sulphur Co. — —
Thiele Kaolin Co. — —
Thomas Paper Stock Co. — 57
Thwing-Albert Instrument Co. — 40
Timken Roller Bearing Co. — —
Titanium Pigment Corp. — —
Torrington Co. — —
Towmotor Co. — —
Tracelab, Inc. — —
Trimbey Machines, Inc. — —

U

United Carbon Co., Inc. — —
United States Steel Export Co. — —
United States Steel Supply Co. — —
U. S. Rubber Co. — —
U. S. Steel Co. — —

V

Valley Iron Works Co. — —
Vanderbilt, R. T., Co. — —
Van der Korput, A. — —
Vapo Systems — —
Virginia Smelting Co. — 51
Vulcan Copper & Supply Co. — —

W

Waldron, John, Corp — —
Walker Process Equipt. Co. — —
Walworth Co. — 8
Warren Steam Pump Co. — —
Waterbury Felt Co. — —
Weber, H. G., & Co., Inc. — —
Wellman Engineering Co. — 50
Westinghouse Electric Corp. — —
West Virginia Pulp & Paper Co. — 52
Weyerhaeuser Timber Co. — —
Whiting Corp. — Front Cover
Williams Gray Co. — —
Wisconsin Wire Works — —
Wolverine Equipment Co. — —
Wyandotte Chemicals Corp. — —

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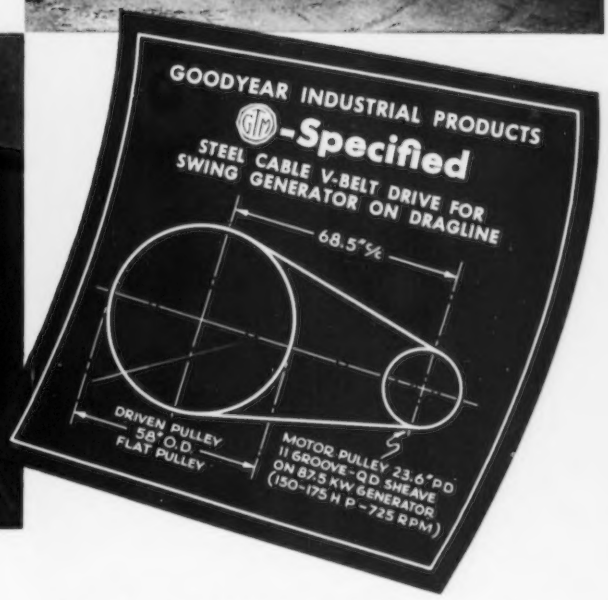
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